Sprinkler System – Product Data

Reliable®

2½" (65 mm), 76mm 3" (80 mm), 4" (100 mm), 6" (150 mm) & 165 mm Model G Riser Check Valves

Bulletin 806 Rev. J

Features

1. Grooved end connections.
2. Compact, lightweight design.
3. Non-slamming, spring loaded clapper to minimize water hammer.
4. Approved for horizontal and vertical installation.
5. Stream-lined body design provides very low friction loss.
6. Elastomer faced clapper provides leak-free, non-sticking sealing.

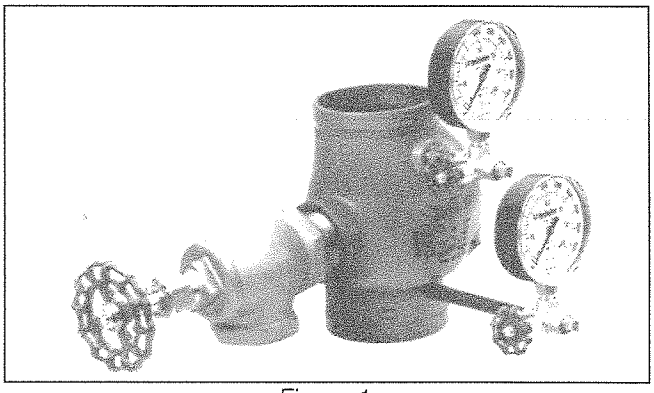

Figure 1

Reliable Model G Riser Check Valves are intended for installation in wet pipe fire protection system risers and preaction systems using supervisory air as low as 1 psi (0,07 bar). The Riser Check Valve and Trim Kit (Figure 1) with a water flow detector can provide an electric alarm, and is a cost effective alternative to an alarm valve in installations not requiring a mechanical alarm.

Riser Check Valves are factory tapped for 1¼" (or 2') NPT and ½" NPT system connections and for ¼" NPT supply connection (Ref. Figure 3).

Grooved end connections provide fast and easy installation using listed or approved mechanical grooved couplings. Rigid style grooved couplings can be used for positive clamping to resist flexural and torsional loads.

Riser Check Valves and associated riser equipment should periodically be given a thorough inspection and test. NFPA 25 provides minimum maintenance requirements. Check valves should be inspected and operated at least annually. Parts should be replaced as required.

When Model G Riser Check Valves are installed vertically, the direction of the flow arrow must point upward. For horizontal installations, the hinge pin must be located at the top. In preaction systems, the valves must be installed vertically.

Valve Description

1. Rated working pressure - 250 psi (17,2 bar).
2. Factory hydrostatic test pressure - 500 psi (34,5 bar).
   Friction loss, expressed in equivalent length of Sch. 40 pipe with C = 120 (based on Hazen-Williams formula) and a flowing velocity of 15 ft/s (4.6 m/s), is:
   2½" (65mm) & 76mm - 7 ft (2.13 m)
   3" (80mm) - 7 ft (2.13 m)
   4" (100mm) - 10 ft (3.05 m)
   6" (150mm) & 165mm - 16 ft (4.88 m)
   See Bulletin 807 for Pressure Drop (psi) vs. Flow Rate (gpm) data chart.
4. Standard grooved end dimensions per ANSI/AWWA C606.
5. Dimensions A - E (Refer to figure 2).

2½" (65mm) & 76mm Valve:				
A=7.12" (181mm)	B=4.81" (122mm)	C=3.88" (98mm)	D=11.38" (289mm)	E=3.01" (76mm)
3" (80mm) Valve:				
A=7.62" (194mm)	B=5.06" (129mm)	C=4.00" (102mm)	D=11.62" (295mm)	E=3.56" (90mm)
4" (100mm) Valve:				
A=8.44" (214mm)	B=6.19" (157mm)	C=4.00" (152mm)	D=13.56" (344mm)	E=4.12" (105mm)
6" (150mm) & 165mm Valves:				
A=10.25" (260mm)	B=7.06" (179mm)	C=5.12" (130mm)	D=14.44" (367mm)	E=5.40" (137mm)

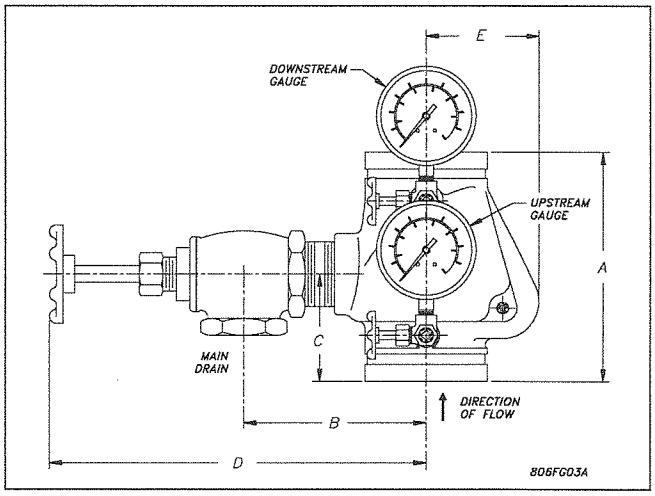

Figure 2

6. Shipping weight (including Trim Kit):
   2½" (65mm) & 76mm -14 lbs. (6.4 kg)
   3" (80mm) - 15 lbs. (6.8 kg)
   4" (100mm) - 24 lbs. (11.0 kg)
   6" (150mm) & 165mm - 45 lbs. (20.4 kg)

Refer to figure 3.

Item No.	Part Name	Material	Qty.	Part Number					
				2½" (65mm)	76mm	3" (80mm)	4" (100mm)	6" (150mm)	165mm
1*	Valve Body	Gray Iron, ASTM–A48 Class 30A	1	91005002	91005001	91005003	91005004	91005006	91005005
2*	Seat	Bronze C83600 or C93200, ASTM–B505	1	96020200	96020200	96020300	96020400	96020600	96020600
3	Clapper	Stainless Steel 304, ASTM–A240	1	91816112	91816112	91816113	91816114	91816116	91816116
4	Facing Seal **	EPDM Rubber	1	95520200	95520200	95520300	95520400	95520600	95520600
5	Clamping Ring	Stainless Steel 304, ASTM–A240	1	95290300	95290300	95290300	95290400	95290600	95290600
6	Gasket **	EPDM Rubber	1	93720604	93720604	93710604	93720604	93720604	93720604
7	Spring	Stainless Steel 302, ASTM–A313	1	96400300	96400300	96400300	96400400	96400600	96400600
8	Hinge Pin	Stainless Steel 303, ASTM–A582	1	95000280	95000280	95000300	95006824	95000600	95000600
9	Bolt	Stainless Steel 304, ASTM–F593	1	91090600	91090600	91090600	91090400	91090600	91090600
10	Locknut **	Stainless Steel 303, ASTM–F594	1	94913816	94913816	94913816	94913816	94913816	94913816
11	Plug, ½"NPT	Steel	1	—	—	—	—	—	—
**	Replacement Seal Kit		1	6888040025	6888040025	6888040030	6888040040	6888040060	6888040060
	Body - Seat Sub - Assembly		1	91005202	91005201	91005203	91005204	91005206	91005205

* Not field replaceable.

Trim Kit Description

Main Drain:

— 1¼" (32 mm) angle valve and close nipple, 2½" (65 mm), 76mm and 3" (80 mm) sizes.

— 2" (50 mm) angle valve and close nipple, 4" (100 mm), 6" (150 mm) & 165 mm sizes.

Upstream and Downstream Side (all sizes):

— 300 psi (20,7 bar) water pressure gauge (2 req'd.).

— ¼" (6 mm) 3-way globe valve (2 req'd).

— ¼" x 5" (6 mm x 127 mm) nipple (upstream only).

— ¼" x 1½" (6 mm x 38 mm) nipple (downstream only).

— ¼" (6 mm) plug (2 req'd).

Approvals

1. Listed by Underwriters Laboratories, Inc.
2. Listed by Underwriters Laboratories of Canada.
3. Approved by Factory Mutual Research Corp.
4. NYC MEA 258-93E.

Valve Disassembly (Refer to figure 3)

1. Close the main water supply valve and drain the system.
2. Remove the check valve from the piping system.
3. Inspect the Seat (2) for any cuts, scrapes and dents. Replace the valve if any damage is found.
4. To replace the Facing Seal (4), remove the Clapper (3), unscrew the Locknut (10) and remove the retention Bolt (9).

Valve Reassembly (Refer to figure 3)

1. Thoroughly clean the Clapper (3). Insert the retention Bolt (9) with a new Gasket (6).
2. Place the new Facing Seal (4) and the Clamping Ring (5) against the Clapper (3). Tighten the new Locknut (10) to 21 in. lbs. (2.3 N•m) torque in 2½" (65mm), 76mm and 3" (80mm) sizes and to 52 in. Lbs. (5.7 N •m) in 4" (100mm), 6" (150mm) and 165mm sizes.

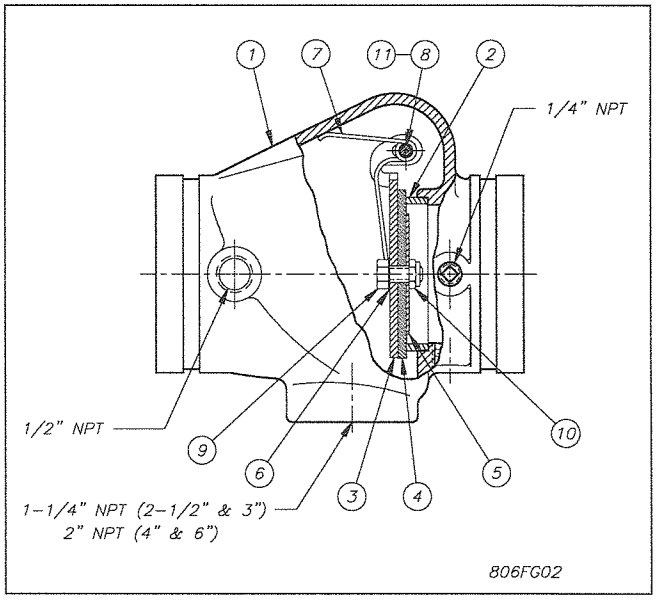

Figure 3

3. Insert the clapper assembly into the valve through the downstream opening. Reinsert the Hinge Pin (8) while holding the coils of the properly oriented Spring (7) in place. Install the Hinge Pin Plug (11).
4. Reinstall the check valve in the system.
5. Place the system back in service.

Ordering Information

Specify:

1. Model G Riser Valve.
2. Size.
3. Riser Trim Kit (ordered separately), specify valve size.

Contact the installing contractor or Reliable if any difficulties are experienced. Should replacement parts be needed, use only genuine Reliable parts.

Manufactured by

Reliable®

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(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

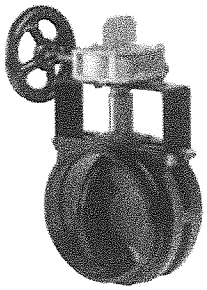
Recycled Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A 07/11 PN 9999970070

FireLock® Butterfly Valve

c UL us LISTED FM LPCB CE 0026 VdS
MEA: 276-99-E CSFM: 7770-0531:113



SERIES 705W
WITH WEATHERPROOF ACTUATOR

The Series 705W butterfly valve features an approved weatherproof actuator housing approved for indoor or outdoor use. It has a ductile iron body and disc with EPDM disc coating. The body is coated with a heat fused polyphenylene sulfide blend to meet FM requirements. Designed for fire protection services only. Series 705W valve is UL Listed and FM Approved for 300 psi/2065 kPa service. The Series 705W is also LPCB approved for 20 Bar and VdS approved for 16 Bar service. Contact Victaulic for details of agency approvals.

WEATHERPROOF ACTUATOR

Pre-wired supervisory switches that monitor the valve in the fully open position for all sizes.

OPTIONAL SUPPLY-SIDE TAP

Series 705W valves are available with a ½" NPT supply side tap designed to allow direct water supply connection to Victaulic FireLock actuated fire protection valves. See separate drawings below. This is an optional feature and must be clearly noted on all orders.

MATERIAL SPECIFICATIONS

Body: Ductile iron conforming to ASTM A-536, coated with polyphenylene sulfide blend.

Disc: Ductile iron conforming to ASTM A-536, various grades, EPDM coated.

Disc Coating:

- **Grade "E" EPDM**
  EPDM (Green color code). Temperature range –30°F to +230°F/–34°C to +110°C. Recommended for cold and hot water service within the specified temperature range plus a variety of dilute acids, oil-free air and many chemical services. UL classified in accordance with ANSI/NSF 61 for cold +86°F/+30°C and hot +180°F/+82°C potable water service. NOT RECOMMENDED FOR PETROLEUM SERVICES.

Stem Bearings: Teflon impregnated fiberglass with stainless steel backing.

Stem Bearing Nuts: Type 416 Stainless Steel.

Tap Plug: Carbon steel, plated.

O-Ring: EPDM

Bracket: Carbon steel, painted.

Actuator:

- 2½ – 8"/65 – 200 mm: Bronze traveling nut on a steel lead screw, in a ductile iron housing.
- 10 – 12"/250 – 300 mm: Steel worm and cast iron quadrant gear, in a cast iron housing.

JOB/OWNER
System No. _____
Location _____

CONTRACTOR
Submitted By _____
Date _____

ENGINEER
Spec Sect _____ Para _____
Approved _____
Date _____

www.victaulic.com

FireLock® Butterfly Valve

SERIES 705W
WITH WEATHERPROOF ACTUATOR

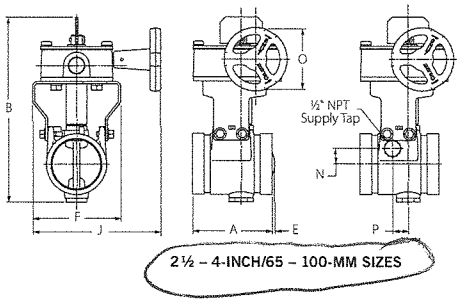
DIMENSIONS – c UL us LISTED FM LPCB

Size		Dimensions – inches/millimeters								Aprx. Wgt. Each
Nominal Pipe Size inches mm	Actual Outside Diameter inches mm	End to End A	Height B	E	F	J	O	N ‡	P ‡	lbs/kg
2½ 65	2.875 73.0	3.77 95.6	8.76 222.5	—	4.21 106.9	6.08 154.4	3.00 76.2	0.00 * 0.0 *	0.75 19.1	8.3 3.8
76.1 mm	3.000 76.1	3.77 95.6	8.76 222.5	—	4.21 106.9	6.08 154.4	3.00 76.2	0.00 * 0.0 *	0.75 19.1	8.3 3.8
3 80	3.500 88.9	3.77 95.6	9.40 238.8	0.08 2.0	4.21 106.9	6.08 154.4	3.00 76.2	0.00 * 0.0 *	0.75 19.1	8.9 4.0
4 100	4.500 114.3	4.63 117.6	10.84 275.3	0.07 1.8	6.01 152.7	6.98 177.3	3.00 76.2	0.73 18.5	1.13 28.7	14.9 6.8
139.7 mm	5.500 139.7	5.88 149.4	12.38 314.5	0.43 10.9	6.01 152.7	8.57 217.7	4.50 114.3	—	—	21.0 9.5
5 125	5.563 141.3	5.88 149.4	12.38 314.5	0.43 10.9	6.01 152.7	8.57 217.7	4.50 114.3	—	—	21.0 9.5
165.1 mm	6.500 165.1	5.88 149.4	13.41 340.6	1.00 25.4	7.51 190.8	9.32 236.7	4.50 114.3	1.60 40.6	1.88 47.8	26.5 12.0
6 150	6.625 168.3	5.88 149.4	13.41 340.6	1.00 25.4	7.51 190.8	9.32 236.7	4.50 114.3	1.60 40.6	1.88 47.8	26.5 12.0
8 200	8.625 219.1	5.33 135.4	16.50 419.1	1.27 32.3	9.65 245.1	10.98 278.9	6.30 160.0	0.00 * 0.0 *	0.68 17.3	43.0 19.5
10 250	10.750 273.0	6.40 162.6	19.14 486.2	1.72 43.7	12.20 309.9	16.19 411.2	9.00 228.6	—	—	80.0 36.3
12 300	12.750 323.9	6.50 165.1	21.54 547.1	2.66 67.6	14.25 362.0	17.22 437.4	9.00 228.6	—	—	102.0 46.3

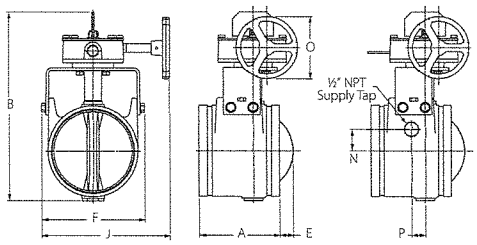
* On Centerline

‡ These dimensions apply only to a Series 705W Butterfly Valve with a ½-inch NPT, supply-side tap

1. To prevent rotation of valves. it is recommended that Series 705W be installed with Victaulic Style 07 Zero-Flex®, Style 005 FireLock, Style 009/009V FireLock EZ, or Style HP-70 Rigid Couplings. If Victaulic flexible couplings are used. additional support may be required.
2. Valve must not be installed with disc in full open position. Disc must be partly closed so that no part is protruding beyond end of valve body.
3. Victaulic grooved end butterfly valves are permitted for use with grooved end pipe (IPS) only. Not permitted for use with plain end (IPS) pipe.
4. Series 705W valves are designed for ambient weather conditions as opposed to submersible service.



2½ – 4-INCH/65 – 100-MM SIZES



5 – 12-INCH/125 – 300-MM SIZES

FireLock® Butterfly Valve

SERIES 705W
WITH WEATHERPROOF ACTUATOR

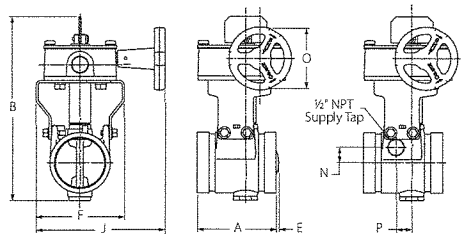
DIMENSIONS – VdS CE 0026 cULus LISTED FM LPCB

Size		Dimensions – inches/millimeters								Aprx. Wgt. Each
Nominal Size inches mm	Actual Outside Diameter inches mm	End to End "A"	Fgt "B"	"E"	"F"	"J"	"O"	"N" ‡	"P" ‡	lbs/kg
76.1 mm	3.000 76.1	3.77 95.6	8.76 222.5	—	4.21 106.9	6.08 154.4	4.50 114.3	0.00 * 0.0 *	0.75 19.1	8.3 3.8
3 80	3.500 88.9	3.77 95.6	9.40 238.8	0.08 2.0	4.21 106.9	6.08 154.4	4.50 114.3	0.00 * 0.0 *	0.75 19.1	8.9 4.0
4 100	4.500 114.3	4.63 117.6	10.84 275.3	0.07 1.8	6.01 152.7	6.98 177.3	4.50 114.3	0.73 18.5	1.13 28.7	14.9 6.8
139.7 mm	5.500 139.7	5.88 149.4	12.38 314.5	0.43 10.9	6.01 152.7	8.57 217.7	7.87 200	—	—	21.0 9.5
6 150	6.625 168.3	5.88 149.4	13.41 340.6	1.00 25.4	7.51 190.8	9.32 236.7	7.87 200	1.60 40.6	1.88 47.8	26.5 12.0
8 200	8.625 219.1	5.33 135.4	16.50 419.1	1.27 32.3	9.65 245.1	10.98 278.9	7.87 200	0.00 * 0.0 *	0.68 17.3	43.0 19.5
10 250	10.750 273.0	6.40 162.6	19.14 486.2	1.72 43.7	12.20 309.9	16.19 411.2	9.84 250	—	—	80.0 36.3
12 300	12.750 323.9	6.50 165.1	21.54 547.1	2.66 67.6	14.25 362.0	17.22 437.4	9.84 250	—	—	102.0 46.3

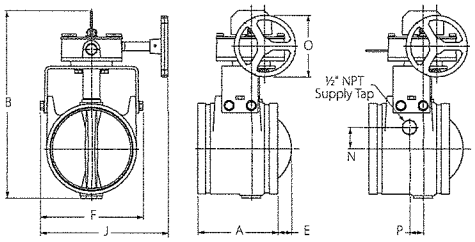
* On Centerline

‡ These dimensions apply only to a Series 705W Butterfly Valve with a ½-inch NPT, supply-side tap

1. To prevent rotation of valves. it is recommended that Series 705W be installed with Victaulic Style 07 Zero-Flex®. Style 005 FireLock, Style 009/009V FireLock EZ, or Style HP-70 Rigid Couplings. If Victaulic flexible couplings are used. additional support may be required.
2. Valve must not be installed with disc in full open position. Disc must be partly closed so that no part is protruding beyond end of valve body.
3. Victaulic grooved end butterfly valves are permitted for use with grooved end pipe (IPS) only. Not permitted for use with plain end (IPS) pipe.
4. Series 705W valves are designed for ambient weather conditions as opposed to submersible service.



76.1MM – 4-INCH/65 – 100-MM NOMINAL SIZES



139.7MM – 12-INCH/125 – 300-MM NOMINAL SIZES

FireLock® Butterfly Valve

SERIES 705W
WITH WEATHERPROOF ACTUATOR

PERFORMANCE

The chart expresses the frictional resistance of Victaulic Series 705W in equivalent feet/meters of straight pipe.

Size			Size		
Nominal Size Inches mm	Actual Outside Diameter Inches mm	Equiv. Feet/m of Pipe	Nominal Size Inches mm	Actual Outside Diameter Inches mm	Equiv. Feet/m of Pipe
2½ 65	2.875 73.0	5 1.6	165.1 mm	6.500 165.1	8 2.5
76.1 mm	3.000 76.1	5 1.6	6 150	6.625 168.3	8 2.5
3 80	3.500 88.9	5 1.6	8 200	8.625 219.1	11 3.4
4 100	4.500 114.3	12 3.7	10 250	10.750 273.0	12 3.7
139.7 mm	5.500 139.7	12 3.7	12 300	12.750 323.9	14 4.3
5 125	5.563 141.3	12 3.7			

MAXIMUM WORKINGS PRESSURE RATINGS

Size		Maximum Working Pressure by Agency			
Nominal Size Inches mm	Actual Outside Diameter Inches mm	cULus PSI	CM PSI	LPCB BAR	VdS BAR
2½ 65	2.875 73.0	300	300	20	—
76.1 mm	3.000 76.1	300	300	20	16
3 80	3.500 88.9	300	300	20	16
4 100	4.500 114.3	300	300	20	16
139.7 mm	5.500 139.7	300	300	20	16
5 125	5.563 141.3	300	300	20	—
165.1	6.500 165.1	300	300	20	—
6 150	6.625 168.3	300	300	20	16
8 200	8.625 219.1	300	300	20	16
10 250	10.750 273.0	300	300	20	16
12 300	12.750 323.9	300	300	20	16

FireLock® Butterfly Valve

SERIES 705W
WITH WEATHERPROOF ACTUATOR

PERFORMANCE

C_V values for flow of water at +60°F/+16°C with a fully open valve are shown in the table below. For additional details, contact Victaulic.

Formulas for C_V Values:

$$\Delta P = \frac{Q^2}{C_v^2}$$

$$Q = C_v \times \sqrt{\Delta P}$$

Where:
Q = Flow (GPM)
ΔP = Pressure Drop (psi)
C_v = Flow Coefficient

Size		C_V	Size		C_V	Size		C_V
Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)
2½ 65	2.875 73.0	325	139.7 mm	5.500 139.7	1150	8 200	8.625 219.1	3400
76.1 mm	3.000 76.1	325	5 125	5.563 141.3	1150	10 250	10.750 273.0	5750
3 80	3.500 88.9	482	165.1 mm	6.500 165.1	1850	12 300	12.750 323.9	8300
4 100	4.500 114.3	600	6 150	6.625 168.3	1850			

Formulas for K_V Values:

$$\Delta P = \frac{Q^2}{K_v}$$

$$Q = K_v \times \sqrt{\Delta P}$$

Where:
Q = Flow $\left(\frac{m^3}{hr.}\right)$
ΔP = Pressure (bar)
K_v = Flow Factor

Size		K_V	Size		K_V	Size		K_V
Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)	Nominal Size Inches mm	Actual Outside Diameter Inches mm	(Full Open)
2½ 65	2.875 73.0	280	139.7 mm	5.500 139.7	995	8 200	8.625 219.1	2940
76.1 mm	3.000 76.1	280	5 125	5.563 141.3	995	10 250	10.750 273.0	4975
3 80	3.500 88.9	415	165.1 mm	6.500 165.1	1600	12 300	12.750 323.9	7180
4 100	4.500 114.3	520	6 150	6.625 168.3	1600			

FireLock® Butterfly Valve

SERIES 705W
WITH WEATHERPROOF ACTUATOR

SWITCH AND WIRING

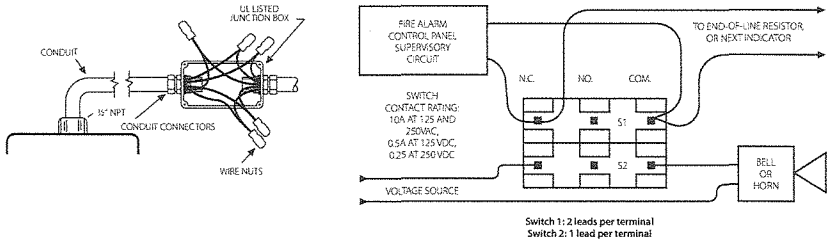
1. The supervisory switch contains two, single pole, double throw, pre-wired switches.
2. Switches are rated:
   10 amps @ 125 or 250 VAC/60 Hz
   0.50 amps @ 125 VDC
   0.25 amps @ 250 VDC
3. Switches supervise the valve in the "open" position.
4. One switch has two #18 MTW wires per terminal, which permit complete supervision of leads (refer to diagrams and notes below). The second switch has one #18 MTW wire per terminal. This double circuit provides flexibility to operate two electrical devices at separate locations, such as an indicating light and an audible alarm, in the area that the valve is installed.
5. A #14 MTW ground lead (green) is provided.

Switch #1 = S1 For connection to the supervisory circuit of a UL Listed alarm control panel

Switch #2 = S2 Auxiliary switch that may be connected to auxiliary devices, per the authority having jurisdiction

S1
- Normally Closed: (2) Blue
- Common: (2) Yellow

S2
- Normally Closed: Blue with Orange Stripe
- Normally Open: Brown with Orange Stripe
- Common: Yellow with Orange Stripe



NOTE: The above diagram shows a connection between the common terminal (yellow – S1 and yellow-with-orange stripe – S2) and the normally closed terminal (blue – S1 and blue-with-orange stripe – S2). In this example, the indicator light and alarm will stay on until the valve is fully open. When the valve is fully open, the indicator light and alarm will go out. Cap off any unused wires (e.g. brown with orange stripe).

Only S1 (two leads per terminal) may be connected to the fire alarm control panel.

The connection of the alarm switch wiring shall be in accordance with NFPA 72 and the auxiliary switch per NFPA 70 (NEC).

FireLock® Butterfly Valve

SERIES 705W
WITH WEATHERPROOF ACTUATOR

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications. designs and standard equipment without notice and without incurring obligations.

INSTALLATION

Reference should always be made to the installation sheet included with the valve. Verify you have the latest revision by visiting our website at www.victaulic.com. Further reference can be found in the I-100 Victaulic Field Installation Handbook.

WCAS-7HFF85

Bulletin 807 Rev. I

Reliable®

Model G
2½" (65 mm), 76mm 3" (80 mm), 4" (100 mm), 6" (150 mm) & 165 mm Swing Check Valves

Features

1. Grooved end connections.
2. Compact, lightweight design.
3. Non–slamming, spring loaded clapper to minimize water hammer.
4. Approved for horizontal and vertical installation.
5. Streamlined body design provides very low friction loss.
6. Elastomer faced clapper provides leak–free, non–sticking sealing.

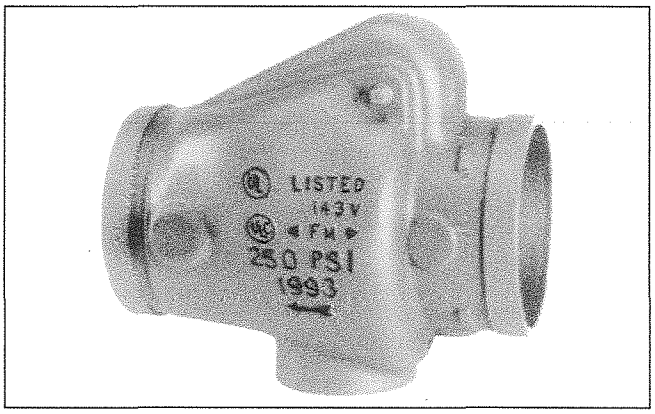


Figure 1

General

Reliable Model G Swing Check Valves are multiple purpose valves performing regular check valve duties with very low friction loss. All four sizes are approved for use in fire protection systems. Typical applications include connections between public water supplies and private fire systems, at the discharge from fire pumps, at gravity tank connections and at fire department pumper connections.

All Model G Check Valves are provided with a ½" NPT (R½) supply side connection (Item 12, Fig.2).

Grooved end connections provide fast and easy installation using listed or approved mechanical grooved couplings. Rigid style grooved couplings can be used for positive clamping to resist flexural and torsional loads.

Swing Check Valves and associated equipment should periodically be given a thorough inspection and test. NFPA 25 provides minimum maintenance requirements. Check valves should be inspected and operated at least annually. Parts should be replaced as required.

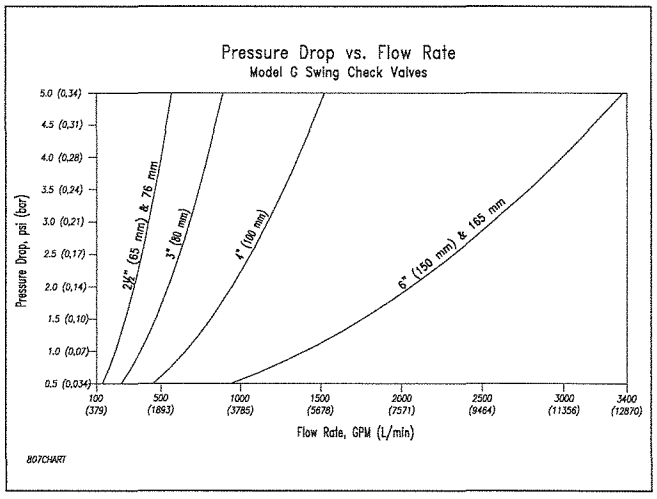
When Model G Swing Check Valves are installed vertically, the direction of the flow arrow must point upward. For horizontal installations, the hinge pin must be located at the top.

Valve Description

1. Rated working pressure 250 psi (17,25 bar).
2. Factory hydrostatic test pressure 500 psi (34,5 bar).
3. Friction loss, expressed in equivalent length of Sch. 40 pipe with C = 120 (based on Hazen and Williams formula):
   2½" (65mm) & 76mm - 7 ft (2.13 m)
   3" (80mm) - 7 ft (2.13 m)
   4" (100mm) - 10 ft (3.05 m)
   6" (150mm) & 165mm - 16 ft (4.88 m)
4. Standard grooved end dimensions per ANSI/AWWA C606.

Technical Data

Valve Size	Face–to–Face Dimensions	Shipping weight
2½" (65mm) & 76mm	7.03" (178mm)	9 lbs. (4kg)
3" (80mm)	7.62" (193mm)	11 lbs. (5kg)
4" (100mm)	8.44" (214mm)	17 lbs. (7.7kg)
6" (150mm) & 165mm	10.25" (260mm)	38 lbs. (17.25kg)



Approvals

1. Listed by Underwriters Laboratories, Inc.
2. Underwriters' Laboratories certified for Canada.
3. Approved by Factory Mutual Research Corp.*
4. NYC MEA 258-93-E

* FM Approved as both a "Single" check valve and as an "Anti-Water Hammer" check valve.

Refer to figure 2.

Item No.	Part Name	Material	Qty.	Part Number					
				2½" (65mm)	76mm	3" (80mm)	4" (100mm)	6" (150mm)	165mm
1*	Valve Body	Gray Iron, ASTM–A48 Class 30A	1	91005012	91005011	91005013	91005014	91005016	91006015
2*	Seat	Bronze C83600 or C93200, ASTM–B505	1	96020200	96020200	96020300	96020400	96020600	96020600
3	Clapper	Stainless Steel 304, ASTM–A240	1	91816112	91816112	91816113	91816114	91816116	91816116
4	Facing Seal **	EPDM Rubber	1	95520200	95520200	95520300	95520400	95520600	95520600
5	Clamping Ring	Stainless Steel 304, ASTM–A240	1	95290300	95290300	95290300	95290400	95290600	95290600
6	Gasket **	EPDM Rubber	1	93720604	93720604	93720604	93720604	93720604	93720604
7	Spring	Stainless Steel 302, ASTM–A313	1	96400300	96400300	96400300	96400400	96400600	96400600
8	Hinge Pin	Stainless Steel 303, ASTM–A582	1	95000280	95000280	95000300	95006824	95000600	95000600
9	Bolt	Stainless Steel 304, ASTM–F593	1	91090600	91090600	91090600	91090600	91090600	91090600
10	Locknut **	Stainless Steel 303, ASTM–F594	1	94913816	94913816	94913816	94913816	94913816	94913816
11	Plug, ¼" NPT	Steel	1	95201800	95201800	95201800	95201800	95201800	95201800
12	Plug, ½" NPT	Steel	1	98604402	98604402	98604402	98604402	98604402	98604402
**	Replacement Seal Kit		1	6888040025	6888040025	6888040030	6888040040	6888040060	6888040060

* Not field replaceable.

Valve Disassembly

1. Close the main water supply valve and drain the system.
2. Remove the check valve from the piping system.
3. Inspect the Seat (2) for any cuts, scrapes and dents. Replace the valve if any damage is found.
4. To replace the Facing Seal (4), remove the Clapper (3), unscrew the Locknut (10) and remove the Retention Bolt (9).

Valve Reassembly

1. Thoroughly clean the Clapper (3). Insert the Retention Bolt (9) with a new Gasket (6).
2. Place the new Facing Seal (4) and the Clamping Ring (5) against the Clapper (3). Tighten the new Locknut (10) to 21 in.-lbs. (2.37 N•m) torque in 2½" (65mm), 76mm & 3" (80mm) sizes and to 52 in.-lbs. (5.87 N•m) in 4" (100mm), 6" (150mm) & 165mm sizes.
3. Insert the clapper assembly into the valve through the downstream opening. Reinsert the Hinge Pin (8) while holding the coils of the properly oriented Spring (7) in place. Install the hinge pin Plug (11).
4. Reinstall the check valve in the system.
5. Place the system back in service.

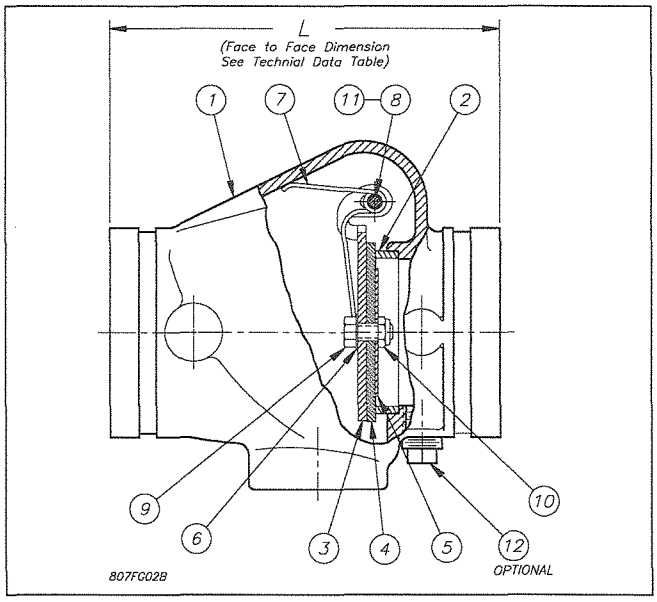


Figure 2

Ordering Information

Specify:

1. Model G Right–Check™ Valve.
2. Size.

Contact the installing contractor or Reliable if any difficulties are experienced. Should replacement parts be needed, use only genuine Reliable parts.

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Productsmanufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by

Reliable®

The Reliable Automatic Sprinkler Co., Inc.
(800) 431-1588 Sales Offices
(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

Recycled Paper

Revision lines indicate updated or new data.

EG. Printed in U.S.A 07/11 PN 9999970071

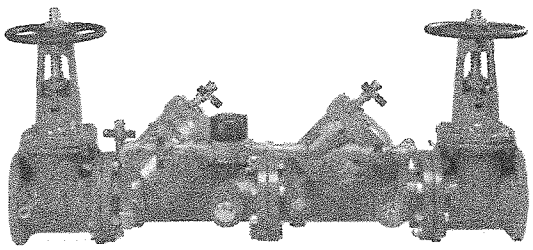
SPECIFICATION SHEET

FEBCO®

Series 806YD

Double Check Detector Assemblies

Size: 3" - 10" (80mm - 250mm)



806YD

The FEBCO Series 806YD Double Check Detector Assemblies are designed for automatic fire sprinkler systems containing non-toxic substances.

Features

- DuraCheck features all stainless steel spring assemblies for corrosion resistance, reduced fouling and longer valve life.
- DuraCast ductile iron bodies for superior strength, corrosion resistance and lighter weight.
- Prevents contamination of potable water by backflow from the fire protection system and detects leaks or unauthorized water use at all flow rates.
- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- Flow curve generated by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.
- Low head loss.
- End Detail (shutoffs) – Flanged ANSI B16.1

Operation

In a nonflow condition, check valves in the by-pass and mainline units are closed. Flows from zero to approximately 5 gpm will flow through the by-pass. This operation at low flow rates is accomplished by designing the differential pressure drop across the by-pass line to be slightly less than the mainline check valve. Therefore, any flow through the fireline system is registered by the by-pass meter.

Flows in excess of approximately 5 gpm will open the mainline check valves causing flow to occur through the mainline assembly and the by-pass line.

Approvals

- Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.*
- ANSI/AWWA Conformance (C510-89)

ASSE 1048 | CSA B64.5 | CLASSIFIED c UL us * | FM Approved * 3" - 10" (80 - 250mm)

* Valves must be supplied with resilient seated shutoff valves for USC to be in effect. Standard Meter is GPM. UL and FM Listings only applicable with approved OS&Y gates.

Models

- Less Gates
- Optional Meter Type
- Left hand by-pass
- Remote Reader
- Meter CFM/GPM

Specifications

Double check detector assembly shall consist of mainline double check assemblies in parallel with a by-pass double check and meter assembly. Mainline check assemblies shall be of the spring loaded center stem guided type.

Ductile iron bodies shall be flanged ANSI B16.1, Class 125, epoxy coated internally 10-20 mils and fusion coated externally.

The by-pass meter assembly shall consist primarily of a bronze water meter in series with a bronze double check valve. All low flow demands up to a minimum of 3 gpm (0.189 L/s) are to pass through the by-pass meter and meter-size double check valve assembly and be accurately recorded. All flows above that of 3 gpm will pass through both the line-size double check valve assembly and by-pas without accurate registration by or damage to the meter.

Mainline shutoff valves shall be resilient wedge. OS&Y, UL/FM for fireline service and are considered integral to the assembly along with full port ball valve testcocks. Assemblies must be factory assembled and tested to assure proper mainline/by-pass balance and cross-over performance.

The assembly shall meet or exceed requirements of USC. Double check detector assemblies shall be FEBCO 806YD, or prior approved equal.

Presure – Temperature

Maximum Working Pressure:	175psi (12.1 bar)
Hydrostatic Test Press:	350psi (24.1 bar)
Temperature Range:	32°F to 140°F (0°C to 60°C)
Fluid:	Water

Job Name NAVAL FACILITIES WATER

Job Location 670 SEAMANS Neck Rd SEAFORD

Engineer _____

Approval _____

Contractor _____

Approval _____

Contractor's P.O. No. _____

Representative _____

Materials

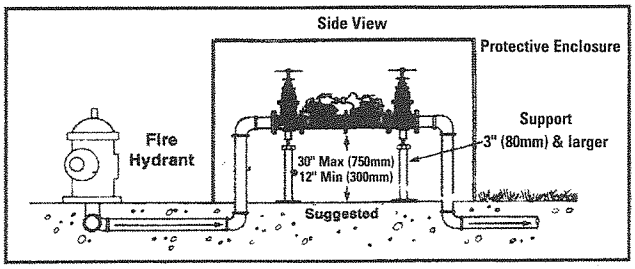
Main Valve Body:	Ductile iron ASTM A-536 grade 65-45-12 epoxy coated internal 10-20 mils
Trim:	Bronze
By-Pass Valve Body:	Bronze
By-Pass Meter:	Totalizing, 1 to 20 gpm, size ⅝" x ¾"
Main Valve Shutoffs:	OS&Y, UL/FM
Elastomers:	Nitrile
Mainline Check Assembly:	Stainless Steel
Shutoffs:	Standard gates OS&Y, resilient wedge

Remote reading flow meters available.

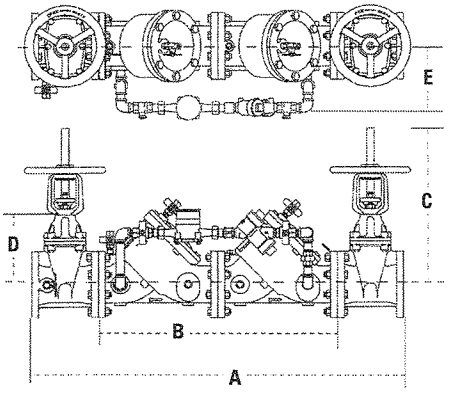
Typical Installation

Double check detector assembly should be installed with a suggested minimum clearance of 12" (300mm) between device and floor or grade. They should be installed where easily accessible for testing and maintenance and must be protected from freezing. They should have support blocks to prevent flange damage. Thermal water expansion and/or water hammer down stream of the Backflow Preventer can cause excessive pressure Excessive pressure situations should be eliminated to avoid possible damage to the system and device.

FEBCO Series 806YD



Dimensions – Weights

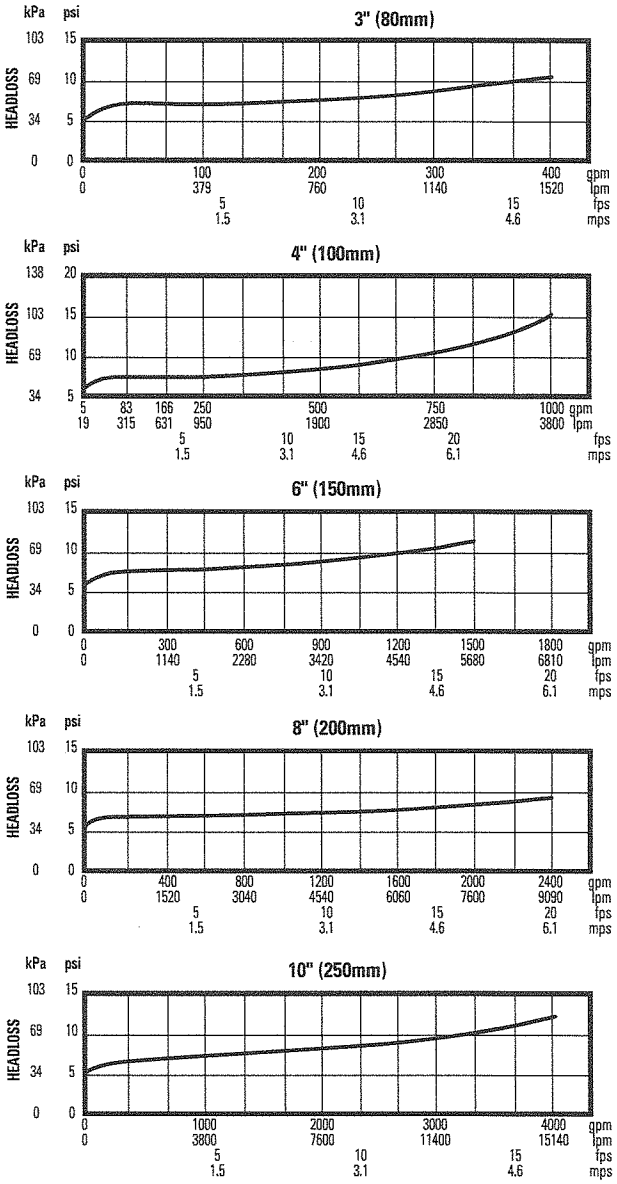


Size: 3" - 10" (80 - 250mm)

SIZE (DN)		DIMENSIONS										WEIGHT			
		A		B		C (OS&Y Open)		D		E		gates		less gates	
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kgs.	lbs.	kgs.
3	80	41 11/16	1059	25 9/16	649	22 1/4	565	8 1/16	205	14 1/2	368	375	170	180	82
4	100	50 7/16	1281	32 5/16	821	23 1/4	591	11	279	15	381	515	234	265	120
6	150	59 11/16	1516	38 9/16	980	30 1/8	765	14	356	16	406	740	336	400	181
8	200	69 3/16	1757	46 1/16	1170	37 3/4	959	18	457	17	432	1115	506	600	272
10	250	84 3/16	2138	58 1/16	1475	48	1219	22	559	20	508	1750	794	900	408

Dimensions shown are nominal, allowance must be made for normal manufacturing tolerances.

Capacity



FEBCO®

A Watts Water Technologies Company

ISO 9001-2000 CERTIFIED

USA: 4381 N. Brawley • Ste. 102 • Fresno, CA • 93722 • Tel. (559) 441-5300 • Fax: (559) 441-5301 • www.FEBCOonline.com
Canada: 5435 North Service Rd. • Burlington, ONT. • L7L 5H7 • Tel. (905) 332-4090 • Fax: (905) 332-7068 • www.FEBCOonline.ca

SSM/SSV Series Alarm Bells

System Sensor's SSM and SSV series alarm bells are low current, high decibel notification appliances for use in fire and burglary systems or other signaling applications.

Features

- Approved for indoor and outdoor use
- Low current draw
- High dB output
- Available in six-inch, eight-inch, and ten-inch sizes
- AC and DC models
- DC models polarized for use with supervision circuitry
- Mount directly to standard four-inch square electrical box indoors
- SSM and SSV series come pre-wired

Reliable Performance. The SSM and SSV series provide loud resonant tones. The SSM series operates on 24VDC and are motor driven, while the SSV series operates on 120VAC utilizing a vibrating mechanism.

Simplified Installation. For indoor use, the SSM and SSV series mount to a standard four-inch square electrical box. For outdoor applications, weatherproof back box, model number WBB, is used.

The SSM and SSV series come pre-wired, to reduce installation time. The SSM series incorporates a polarized electrical design for use with supervision circuitry.

Agency Listings

UL LISTED S4011

ULC CS549

FM APPROVED 3005255

7135-1653:0217

MEA approved 331-01-E

SSM/SSV Specifications

Architectural/Engineering Specifications

Model shall be a SSM or SSV Series alarm bell. Bells shall have underdome strikers and operating mechanisms. Gongs on said bells shall be no smaller than nominal 6″/8″/10″ (specify size) with an operating voltage of 24VDC or 120VAC (specify by part number). Bells shall be suitable for surface or semi-flush mounting. Outdoor surface mounted installations shall be weatherproof (using optional WBB weatherproof electrical box). Otherwise bells shall mount to a standard 4″ square electrical box having a maximum projection of 2½″. Bells shall be located as shown on the drawings or as determined by the Authority Having Jurisdiction. Bells shall be listed for indoor/outdoor use by Underwriters Laboratories and the California State Fire Marshal, and approved by Factory Mutual and MEA.

Physical/Operating Specifications

Operating Temperature Range	–31°F to 140°F
Operating Voltage	SSM series: 24 VDC SSV series: 120 VAC
Termination	Provided with 2 sets of leads for in/out wiring
Service Use	Fire Alarm, General Signaling, Burglar Alarm
Warranty	3 years

Electrical Specifications

Model	Gong Diameter (inches)	Nominal Voltage	Operating Voltage Limit	Maximum Current	Sound Output (dBA)
SSM24-6	6	Regulated 24VDC	16 to 33VDC	DC-31.1mA/ FWR-53.5mA	82
SSM24-8	8	Regulated 24VDC	16 to 33VDC	DC-31.1mA/ FWR-53.5mA	80
SSM24-10	10	Regulated 24VDC	16 to 33VDC	DC-31.1mA/ FWR-53.5mA	81
SSV120-6	6	Regulated 120VAC	96 to 132VAC	53mA	85
SSV120-8	8	Regulated 120VAC	96 to 132VAC	53mA	82
SSV120-10	10	Regulated 120VAC	96 to 132VAC	53mA	82

* Sound output measured at Underwriter Laboratories, as specified in UL464

Ordering Information

UL/FM Model No.	ULC/Canadian Model No.	Description
SSM24-6	SSM24-6A	Bell, 6″, 24VDC, Polarized, 82dBA
SSM24-8	SSM24-8A	Bell, 8″, 24VDC, Polarized, 80dBA
SSM24-10	SSM24-10A	Bell, 10″, 24VDC, Polarized, 81dBA
SSV120-6	SSV120-6A	Bell, 6″, 120VAC, 85dBA
SSV120-8	SSV120-8A	Bell, 8″, 120VAC, 82dBA
SSV120-10	SSV120-10A	Bell, 10″, 120VAC, 82dBA
WBB		Weatherproof back box for SSM and SSV series, when installed outdoors

SYSTEM SENSOR®

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

A05-0260-010 • 08/11 • #2870

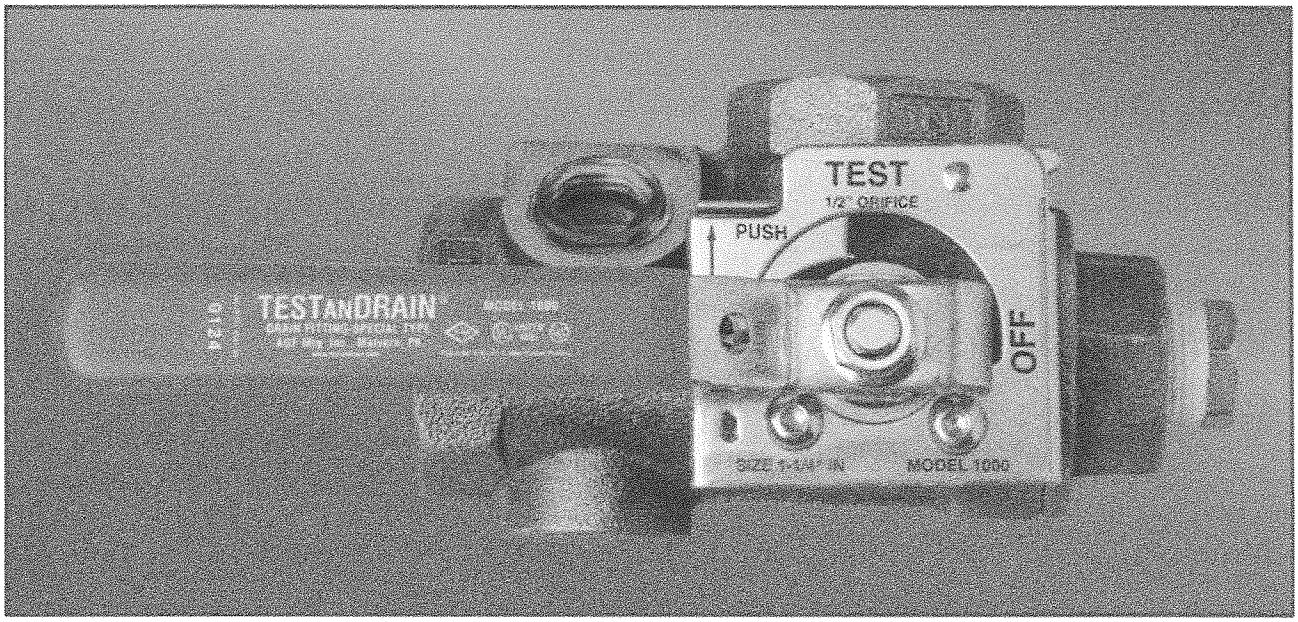
Model 1000

TESTANDRAIN®

Sectional Floor Control Test and Drain Valve

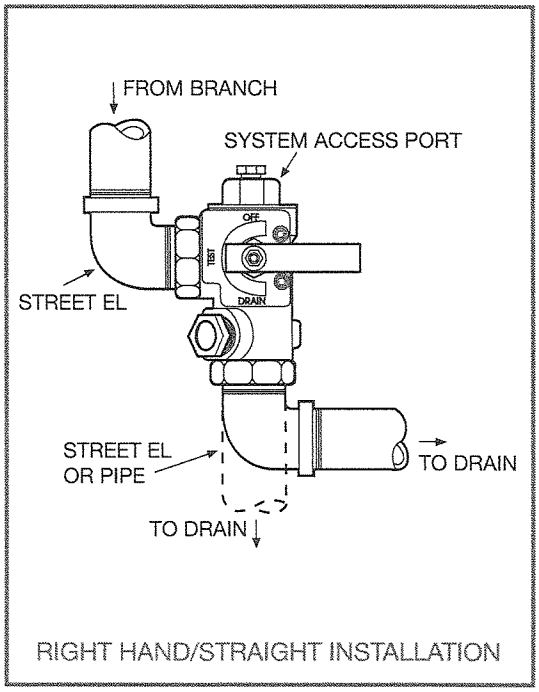
c UL us FM APPROVED

¾" 1" 1¼" 1½" 2"



- The AGF Manufacturing Inc. **Model 1000 TESTANDRAIN®** provides both the test function and the express drain function for a wet fire sprinkler system.
- The **Model 1000** complies with the requirements of NFPA-13, NFPA-13R, and NFPA-13D.
- The **Model 1000 TESTANDRAIN®** is a compact single handle ball valve which includes a tamper resistant test orifice and integral tamper resistant sight glasses, and is 300 PSI rated.
- Available in a full range of sizes from ¾" to 2" NPT and BSPT, with all specifiable orifice sizes ⅜" (2.8K), 7/16" (4.2K), ½" (5.6K), 17/32" (8.0K), ⅝" (11.2K, ELO), ¾" (14.0K, ESFR), and K25 as required by NFPA 13, 2007 Edition (see reverse).
- The orifice size is noted on the indicator plate and the valve features a tapped and plugged port for system access.
- A locking kit is available and can be ordered with the valve to provide vandal resistance or prevent unintentional alarm activation.
- Repair kits including (1) adapter gasket, (1) ball, (2) valve seats, (1) stem packing, and (1) stem washer are available for all **TESTANDRAIN®** valves. Valve and orifice size must be specified when ordering.

MODEL 1000 - FRONT VIEW, VERTICAL INSTALLATION

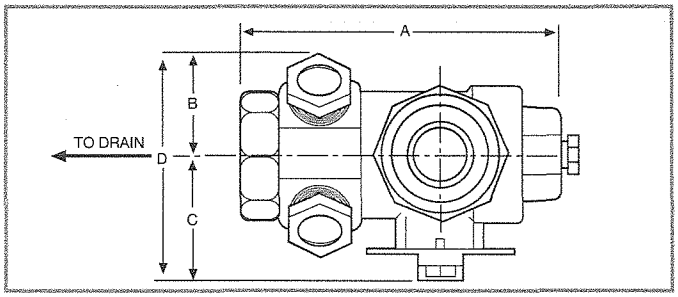


Reliability, Versatility, Code Compatibility

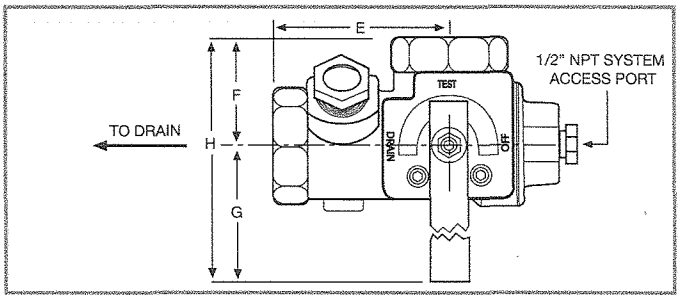
Model 1000 TEST AN DRAIN®

300 PSI Bronze Ball Valve

Model 1000 - Plan View



Front View - Horizontal Install



Dimensions

Orifice Size Available: 3/8", 7/16", 1/2", 17/32", ELO (5/8")*, ESFR (3/4")*, & K25**

SIZE	A	B	C	D	E	F	G	H
3/4"	5 1/16" (128 mm)	1 1/2" (37.5 mm)	2 3/16" (57 mm)	3 5/8" (93 mm)	3 3/8" (86 mm)	1 13/16" (46 mm)	4 9/16" (117 mm)	6 3/8" (162.5 mm)
1"	5 1/16" (128 mm)	1 1/2" (37.5 mm)	2 3/16" (57 mm)	3 5/8" (93 mm)	3 3/8" (86 mm)	1 13/16" (46 mm)	4 9/16" (117 mm)	6 3/8" (162.5 mm)
1 1/4"	5 7/16" (163 mm)	1 11/16" (43 mm)	2 9/16" (65 mm)	4 1/4" (108 mm)	3 5/16" (83 mm)	1 15/16" (51 mm)	5 9/16" (141 mm)	5 1/2" (192 mm)
1 1/2"	6 7/16" (163 mm)	1 13/16" (45 mm)	3 1/4" (81.5 mm)	5 1/16" (127 mm)	3 7/8" (99 mm)	2 5/8" (67 mm)	8 1/4" (207 mm)	10 7/8" (274 mm)
2"	6 7/16" (163 mm)	1 13/16" (45 mm)	3 1/4" (81.5 mm)	5 1/16" (127 mm)	3 7/8" (99 mm)	2 5/8" (67 mm)	8 1/4" (207 mm)	10 7/8" (274 mm)

* Available on 1 1/4" to 2" size units only

** Available on 1 1/2" and 2" size units only

Materials

Handle: Steel
Stem: Rod Brass
Ball: C.P. Brass
Body: Bronze
Valve Seat: Impregnated Teflon®
Indicator Plate: Steel
Handle Stop: Steel

Approvals

UL and ULC Listed (EX4019)
FM Approved
NYC-BSA No. 720-87-SM

MADE IN U.S.A.

The Model 1000 provides all of the following...

From the 2007 Edition of NFPA 13

Chapter 8.16.2.4.1*	Provisions shall be made to properly drain all parts of the system.
Chapter 8.16.2.4.2 & 8.16.2.4.3	Drain connections, interior sectional or floor control valve(s) – shall be provided with a drain connection having a minimum size as shown in Table 8.16.2.4.2.
Chapter 8.16.2.4.4	Drains shall discharge outside or to a drain capable of handling the flow of the drain.
Chapter A.8.17.4.2	(Wet Pipe System) test connection is permitted to terminate into a drain capable of accepting full flow... using an approved sight test connection containing a smooth bore corrosion-resistant orifice giving a flow equivalent to one sprinkler...
Chapter 8.17.4.2.2	The test connection valve shall be readily accessible.
Chapter 8.17.4.2.4	shall be permitted to be installed in any location... downstream of the waterflow alarm.
Chapter 8.17.4.3.1	(Dry Pipe System) a trip test connection not less than 1" in diameter, terminating in a smooth bore corrosion-resistant orifice, to provide a flow equivalent to one sprinkler...
Chapter 8.17.4.3.2	The trip test connection... with a shutoff valve and plug not less than 1", at least one of which shall be brass.

USA Patent # 4741361 and Other Patents Pending

AGF Manufacturing Inc.
100 Quaker Lane, Malvern, PA 19355
Phone: 610-240-4900
Fax: 610-240-4906
www.testandrain.com

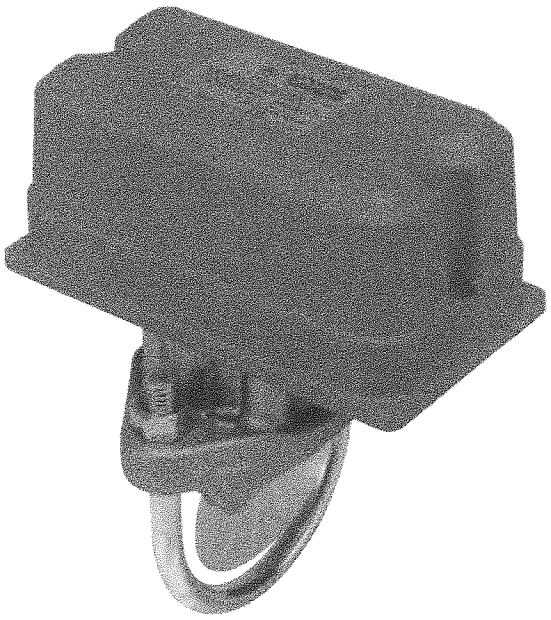
Job Name:_____

Architect:_____

Engineer:_____

Contractor:_____

WFD Series
Waterflow Detector



The System Sensor WFD series is compatible with schedule 10 through 40 steel pipe, sizes 2˝ through 8˝, and can be mounted in a vertical or horizontal position.

Features

- Two-inch mounting hole provided in new WFD30-2 models
- UL-listed models are NEMA 4 rated
- Sealed retard mechanism immune to dust and other contaminants
- Visual switch activation
- Field-replaceable retard mechanism and SPDT switches
- Rugged, dual SPDT switches enclosed in a durable terminal block
- Accommodates up to 12 AWG wire
- Designed for both indoor and outdoor use
- 100 percent synchronization activates both alarm panel and local bell
- Tamper-resistant cover screws

Robust Construction. The WFD series consists of a rugged, NEMA 4-rated enclosure. Designed for both indoor and outdoor use, the WFD series operates across a wide temperature range, from 32°F to 120°F.

Reliable Performance. UL-listed models are equipped with tamper-resistant cover screws to prevent unauthorized entry. Inside, two sets of SPDT (Form C) synchronized switches are enclosed in a durable terminal block to assure reliable performance.

False Alarm Immunity. The WFD series incorporates a mechanical retard feature, which minimizes the risk of false alarm due to pressure surges or air trapped in the sprinkler system. In addition, the mechanical retard's unique sealed design is immune to dust and other contaminants.

Simplified Operation. The WFD series is designed to simplify installation. Two conduit openings permit easy attachment to the local alarm system. The retard mechanism and dual SPDT switches are field-replaceable.

Agency Listings

LISTED S739 | CS169 | 7770-1653:114 | MEA approved 167-93-E | FM APPROVED 3006195

Waterflow Detector Specifications

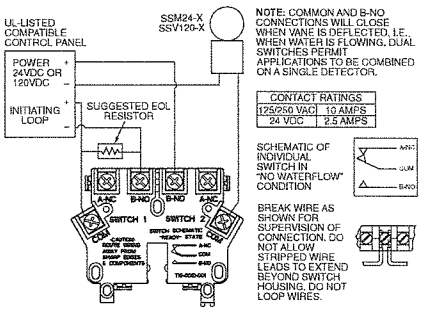
Engineering Specifications

Vane-type waterflow detectors shall be installed on system piping as designated on the drawing and/or as specified herein. Detectors shall mount on any clear pipe span of the appropriate nominal size, either a vertical upflow or horizontal run, at least 6″ from any fittings that may change water direction, flow rate, or pipe diameter or no closer than 24″ from a valve or drain. Detectors shall have a sensitivity in the range of 4 to 10 gallons per minute and a static pressure rating of 450 psi* for 2″ – 8″ pipes. The detector shall respond to waterflow in the specified direction after a preset time delay that is field adjustable. The delay mechanism shall be a sealed mechanical pneumatic unit with visual indication of actuation. The actuation mechanism shall include a polyethylene vane inserted through a hole in the pipe and connected by a mechanical linkage to the delay mechanism. Outputs shall consist of dual SPDT switches (Form C contacts). Two conduit entrances for standard fittings of commonly used electrical conduit shall be provided on the detectors. A grounding provision is provided. Unless noted, enclosures shall be NEMA 4 listed by Underwriters Laboratories Inc. All detectors shall be listed by Underwriters Laboratories Inc. for indoor or outdoor use.

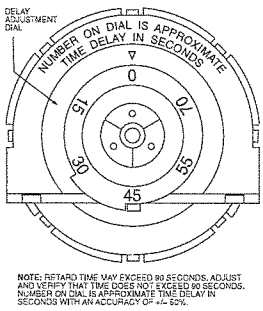
Standard Specifications

Static Pressure Rating	450 PSI*	Operating Temperature Range	32°F to 120°F (0°C to 49°C)
Maximum Surge	18 Feet Per Second (FPS)	Enclosure Rating*	NEMA 4 – suitable for indoor/outdoor use
Triggering Threshold Bandwidth (Flow Rate)	4–10 GPM	Cover Tamper Switch	Standard with ULC models, optional for UL models, part no. 546-7000
Conduit Entrances	Two openings for ½″ conduit. One open, one knock-out type	Service Use	Automatic Sprinkler: NFPA-13 One or Two Family Dwelling: NFPA 13D Residential Occupancies up to 4 Stories: NFPA 13R National Fire Alarm Code: NFPA-72
Contact Ratings	Two sets of SPDT (Form C) 10.0 A, ½ HP @ 125/250 VAC 2.5 A @ 6/12/24 VDC	U.S. Patent Numbers	5,213,205
Compatible Pipe	Steel water pipe, schedule 10 through 40	Warranty	3 Years

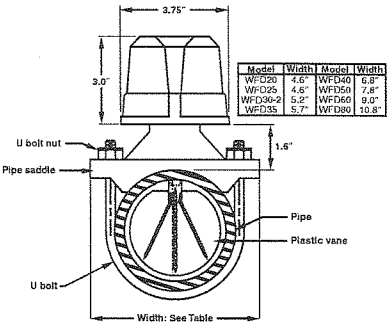
WFD Field Wiring Diagram



Delay Adjustment Dial



Overall Dimensions, Installed



Model	Width	Model	Width
WFD20	4.6″	WFD40	6.8″
WFD25	4.6″	WFD50	7.8″
WFD30-2	5.2″	WFD60	9.0″
WFD35	5.7″	WFD80	10.8″

Ordering Information

UL Model	ULC Model	Pipe Size	Hole Size	Shipping Weight
WFD20	WFD20A	2″	1¼″	4.2 lbs.
WFD25	WFD25A	2½″	1¼″	4.3 lbs.
WFD30-2	WFD30-2A	3″	2″	4.5 lbs.
WFD35	WFD35A	3½″	1¼″	4.7 lbs.
WFD40	WFD40A	4″	2″	5.2 lbs.
WFD50	WFD50A	5″	2″	6.3 lbs.
WFD60*	WFD60A	6″	2″	6.8 lbs.
WFD80*	WFD80A	8″	2″	7.5 lbs.
Accessories				
A3008-00	Retard mechanism			
A77-01-02	Terminal block			
546-7000	Tamper-proof switch kit			
WFDW	Tamper-proof wrench for cover			
WFDN4	Gasket kit			

*Maximum pressure rating 400 psi as approved by Factory Mutual.

SYSTEM SENSOR

3825 Ohio Avenue • St. Charles, IL 60174
Phone: 800-SENSOR2 • Fax: 630-377-6495

A05-0180-013 • 1/09 • #1922

Bulletin 013 Rev. I

Reliable®

Models F1 Series Standard Response Standard Spray

Model F156 Sprinkler Types
Standard Upright
Standard Pendent
Conventional
Vertical Sidewall
Horizontal Sidewall

Model F156 Recessed Sprinkler Types
Pendent/F1/F2/FP
Horizontal Sidewall

Model F142, F1XLH & F128 Sprinkler Types
Standard Upright
Standard Pendent

Model F142, F1XLH & F128 Recessed Sprinkler Types
Pendent/F1/F2/FP

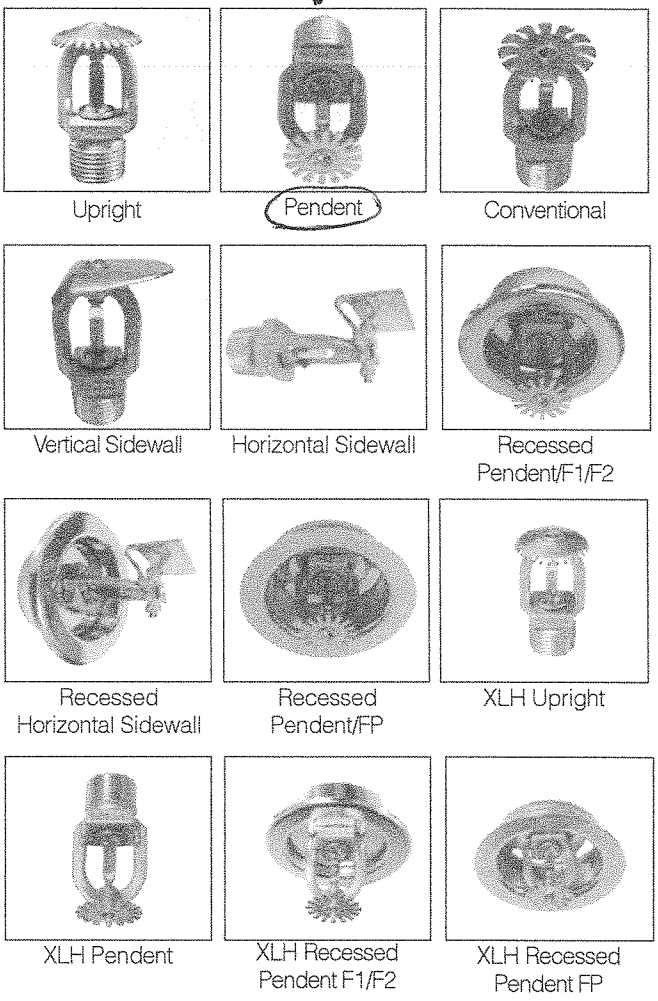
Approval Organizations
1. Underwriters Laboratories Inc. and certified for Canada (cULus)
2. Factory Mutual Approvals (FM)
3. Loss Prevention Council (LPCB, UK)
4. VdS Schadenverhütung GmbH

UL Listing Category
Sprinklers, Automatic & Open (VNIV)

Product Description
The F156, F142, F1XLH & F128 Series Glass Bulb Sprinkler combines the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler. Whether installed on exposed piping or in an office ceiling, it is functional and attractive.

Beautifully versatile is the description for the Reliable Models F156, F142, F1XLH & F128 Series Recessed glass bulb sprinkler. Recessing the F156, F142, F1XLH & F128 Series enhances its already low profile decorative appearance, and facilitates a rapid and perfect installation.

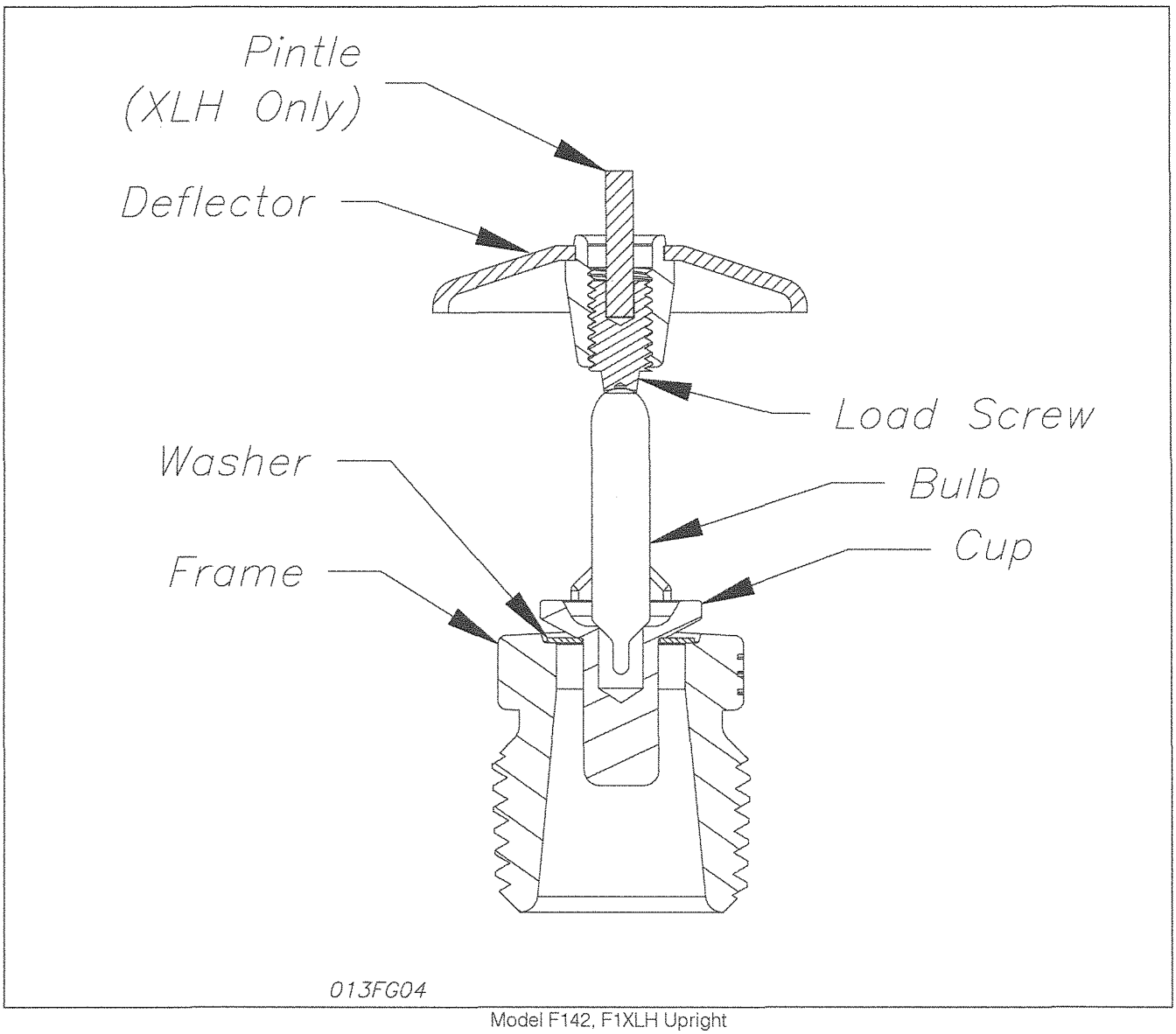
The recessed escutcheon of the Models F156, F142, F1XLH & F128 are highly adjustable. The two piece construction makes field installation a very easy and rapid task. This also allows ceiling panels to later be removed without shutting down the fire protection system, thus facilitating maintenance of above ceiling services.



The F156, F142, F1XLH & F128 Series Automatic Sprinkler utilizes a 5.0 mm frangible glass bulb. The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response.

At normal temperatures, the glass bulb contains the fluid in both the liquid phase and in the vapor phase. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water.

The F156, F142, F1XLH & F128 Series Sprinkler temperature rating is identified by the color of the glass bulb capsule as well as frame color where applicable.



Model F142, F1XLH Upright

Technical data:

Models	Discharge Coefficient	Response	Thread Size	Max. Working Pressure	Min. Working Pressure	Temperature Rating	Finish
F156	K 5.6	Standard	1/2" NPT (R1/2)	175 PSI	7 PSI	See "Temperature Ratings" Table	See "Finish Table"
F142 F1XLH	K 4.2						
F128	K 2.8						

Material Data:

Frame	Deflector	Load Screw	Pintle	Cup	Washer	Bulb
DZR Brass QM Brass	CDA Alloy 260, CDA Alloy 220 or CDA Alloy 510	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 651 or CDA Alloy 693	Nickel Alloy 440 or Alloy 360 coated with PTFE Adhesive Tape	Glass

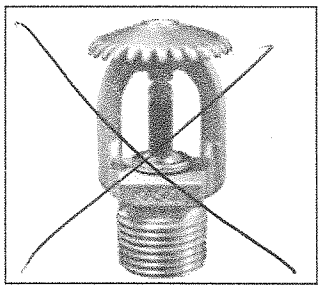
Model F156, Upright, Pendent & Conventional Sprinklers
Model F142, F1XLH & F128 Upright & Pendent Sprinklers

Installation Wrench: Model D Sprinkler Wrench

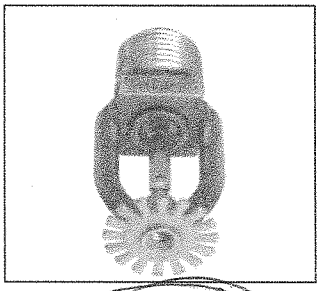
Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organization	Sprinkler Identification Number (SIN)	
		US	Metric			Upright	Pendent
Standard-Upright (SSU) and pendent Deflectors Marked to Indicate Position							
1/2" (15mm) [1]	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	1,2,3,4	RA1325[2][3][5]	RA1314[2][3][5]
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	1	RA1323[2]	RA1313
3/8 (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	1,2	RA1321[2][3][4]	RA1311
Conventional-Install in Upright or Pendent Position							
15mm [1]	1/2" NPT (R1/2)	5.6	80	57mm	3, 4	RA1375[5]	

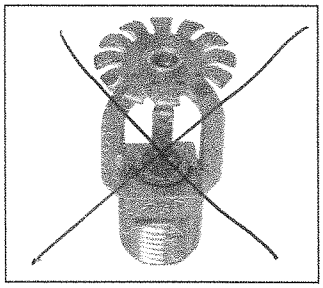
[1] Refer to Bulletin 024 for Special Response Sprinklers (F1S5-56)
[2] cULus Listed corrosion resistant (Polyester coated) sprinkler.
[3] Polyester coated FM Approved sprinkler.
[4] FM Approved for SSU up to and including 200°F (93°C).
[5] Polyester coated LPCB & VdS approved sprinkler RA1325, RA1314 & RA1375.



Upright



Pendent



Conventional

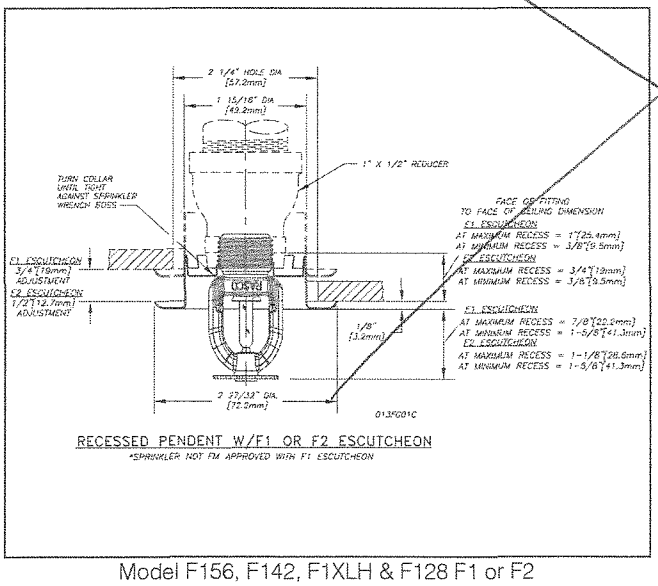
Model F156, F142, F1XLH & F128 Recessed Pendent Sprinklers[1]

Installation Wrench: Model GFR2 Sprinkler Wrench

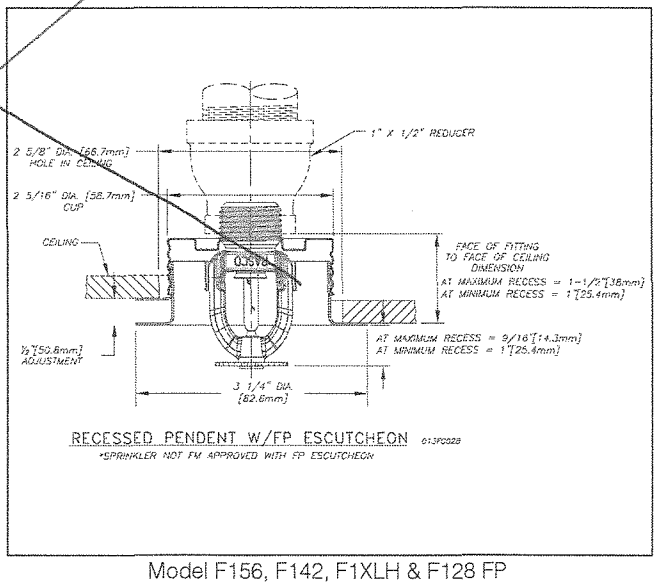
Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Sprinkler Identification Number (SIN)
		US	Metric		
1/2" (15mm)	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	RA1314
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	RA1313
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	RA1311

[1] Refer to escutcheon data table for approvals & dimensions



Model F156, F142, F1XLH & F128 F1 or F2



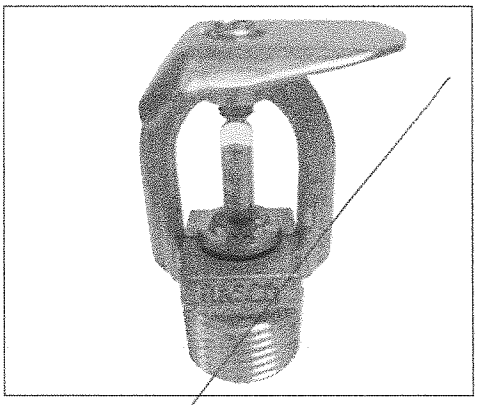
Model F156, F142, F1XLH & F128 FP

Model F156 Vertical Sidewall Sprinkler

Installation Wrench: Model D Sprinkler Wrench
Installation Position: Upright or Pendent
Approval Type: Light Hazard Occupancy

U.S. Patent No. 6,374,920

Sprinkler Type	Deflector to Ceiling Distance (Min. - Max.)
Upright	4" (102mm) - 12" (305mm)
Pendent	4" (102mm) - 12" (305mm)



Vertical Sidewall

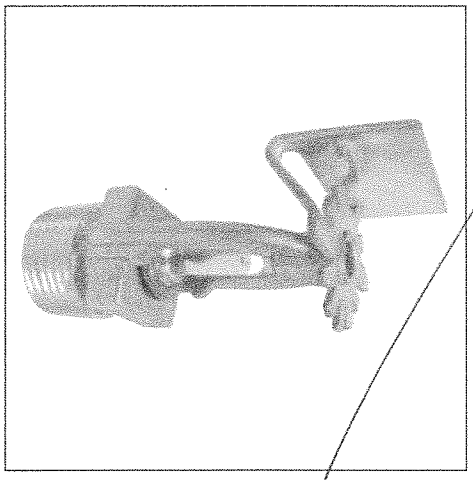
Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval [1] Organizations	Sprinkler Identification Numbers (SIN)
		US	Metric			
½" (15mm)	½" NPT (R1/2)	5.6	8.0	2.25" (57mm)	1,2,3	RA1385[1][2][3]

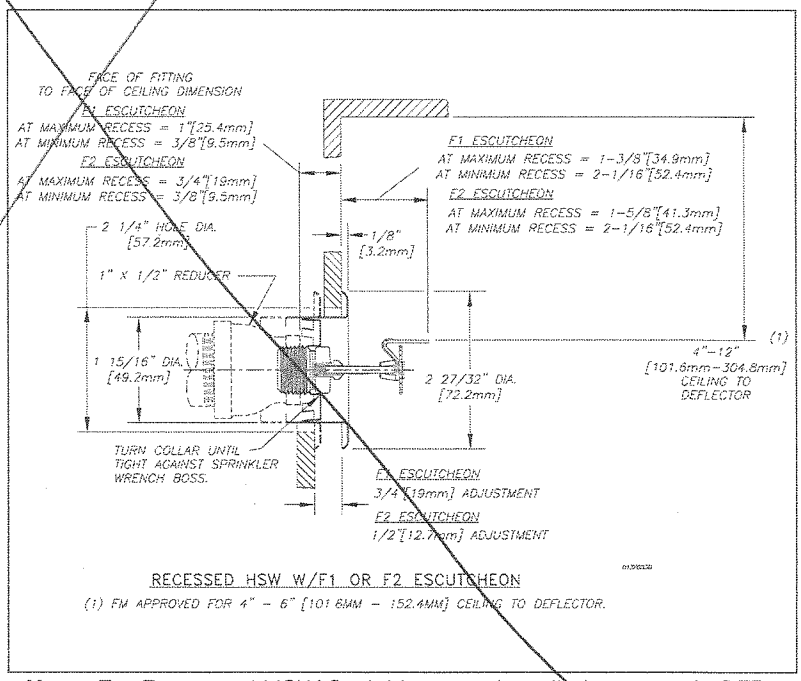
[1] LPC Approval is pendent only, 57°C through 141°C ratings.
[2] cULus Listed corrosion resistant (Polyester coated) sprinkler.
[3] cULus Listed & FM Approved corrosion resistant for lead, wax and wax over lead.

Model F156 Horizontal Sidewall Sprinkler

Deflector: HSW
Installation Wrench: Model D Sprinkler Wrench



Horizontal Sidewall



Note: For Recessed HSW Sprinklers use installation wrench GFR2.

Installation Data: Horizontal Sidewall

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations		Sprinkler Identification Numbers (SIN)
		US	Metric		Light Hazard	Ordinary Hazard	
½" (15mm)	½" NPT (R1/2)	5.6	80	2.63" (67mm)	1,2	1	RA1335[1][2][3]

[1] cULus Listed corrosion resistant (Polyester coated) sprinkler.
[2] cULus Listed & FM Approved corrosion resistant for lead, wax and wax over lead.
[3] Polyester coated FM approved sprinkler.

Application

Model F156, F142, F1XLH, F128 & Model F156, F142, F1XLH & F128 Recessed sprinklers are used in fixed fire protection systems: Wet, Dry, Deluge or Preaction. Care must exercised that the orifice size, temperature rating, deflector style and sprinkler type are in accordance with the latest published standards of the National Fire Protection Association or the approving Authority Having Jurisdiction Installation.

Installation

Model F156, F142, F1XLH & F128 Series sprinklers are standard response sprinklers intended for installation as specified in NFPA 13. They must also be installed with the Model D Sprinkler Wrench specifically designed by Reliable for use with these sprinklers.

The Model F156, F142, F1XLH & F128 Recessed Sprinklers are to be installed with a maximum recess of ¾ inch (19mm). The Model F1, F2, and FP Escutcheon illustrated are the only recessed escutcheon to be used with the Model F156, F142, F1XLH & F128 Recessed Sprinklers. The use of any other recessed escutcheon will void all approvals and negate all warranties. When installing Model F156, F142, F1XLH & F128 Recessed Sprinklers use the Model GFR2 Sprinkler Wrench. Any other type of wrench may damage these sprinklers.

Note: A leak tight ½" NPT (R1/2) sprinkler joint can be obtained with a torque of 8-18 ft-lbs (10,8 - 24,4 N-m). Do not tighten sprinklers over maximum recommended torque. It may cause leakage or impairment of the sprinklers.

Glass bulb sprinklers have orange covers to protect the bulb during the installation process. REMOVE THIS PROTECTION ONLY AFTER THE SYSTEM HAS BEEN HYDROSTATICALLY TESTED AND, WHEN APPLICABLE, THE ESCUTCHEONS HAVE BEEN INSTALLED. RASCO wrenches are designed to install sprinklers when covers are in place.

Ordering Information

Specify:

1. Sprinkler Model
2. Sprinkler Type
3. Orifice Size
4. Deflector Type
5. Temperature Rating:
   - Specify when ordering
     - Model F156 Pendent Sprinkler
6. Sprinkler Finish
7. Escutcheon Finish (where applicable)

Note: When Models F156, F142, F1XLH & F128 Recessed Sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

Escutcheon Data [1]

[1] SIN: RA1335 - cULus and FM permits use with F1 or F2 escutcheons for light hazard only.

Maintenance

The Model F156, F142, F1XLH & Model F156, F142, F1XLH & F128 Recessed Sprinklers should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluid. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging until used to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Temperature Ratings

Classification	Sprinkler Temperature °C	Sprinkler Temperature °F	Max. Ambient Temp.	Bulb Color
Ordinary	57	135	100°F (38°C)	Orange
Ordinary	68	155	100°F (38°C)	Red
Intermediate	79	175	150°F (66°C)	Yellow
Intermediate	93	200	150°F (66°C)	Green
High[1]	141	286	225°F (107°C)	Blue
Extra High[1]	182	360	300°F (149°C)	Mauve

[1] Not available for recessed Sprinklers.

Maximum Working Pressure

175 psi (12 bar)

100% Factory tested hydrostatically to 500 psi (34.5 bar)

Finish[1]

Standard Finishes	
Sprinkler	**Escutcheon**
Bronze	Brass
Chrome	Chrome
Polyester Coated [6][7][9]	White Painted
Special Application Finishes	
Sprinkler	**Escutcheon**
Bright Brass [2]	Bright Brass
Black Plated	Black Plated
Black Paint [3][9]	Black Paint
Off White [3][9]	Off White
Satin Chrome	Satin Chrome
Lead Plated [3][4][8]	
Wax Coated [3][4][5][8]	
Wax Over Lead [3][4][5][8]	

[1] Other colors and finishes are available on special order. Consult factory for details. Custom color painted sprinklers may not retain their UL Corrosion resistance listing.

[2] 200°F (93°C) maximum.

[3] UL and ULC listed only.

[4] 155°F to 200°F (68°C to 93°C) ratings only.

[5] 286°F (141°C) sprinklers may be coated for ambient conditions not exceeding 150°F (66°C).

[6] cULus listed "corrosion resistant" applies to SIN Number RA1325 (Upright) RA1323 (upright), RA1321(Upright), RA1335 (HSW), RA1385(VSW) and RA1314 (Pendent) in standard black or white. Corrosion resistance in other polyester colors is available upon request.

[7] FM Approved finish as "Polyester Coated" applies only to SIN number RA1314 & RA1321 (Pendent) in standard black or white.

[8] FM Approved finish applies only to SIN number RA1335 & RA1385.

[9] LPCB and VdS Approved finish applies only to RA1325, RA1314 and RA1375.

Reliable...For Complete Protection

Reliable offers a wide selection of sprinkler components. Following are some of the many precision-made Reliable products that guard life and property from fire around the clock.

- Automatic sprinklers
- Flush automatic sprinklers
- Recessed automatic sprinklers
- Concealed automatic sprinklers
- Adjustable automatic sprinklers
- Dry automatic sprinklers
- Intermediate level sprinklers
- Open sprinklers
- Spray nozzles
- Alarm valves
- Retarding chambers
- Dry pipe valves
- Accelerators for dry pipe valves
- Mechanical sprinkler alarms
- Electrical sprinkler alarm switches
- Water flow detectors
- Deluge valves
- Detector check valves
- Check valves
- Electrical system
- Sprinkler emergency cabinets
- Sprinkler wrenches
- Sprinkler escutcheons and guards
- Inspectors test connections
- Sight drains
- Ball drips and drum drips
- Control valve seals
- Air maintenance devices
- Air compressors
- Pressure gauges
- Identification signs
- Fire department connection

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by

Reliable®

The Reliable Automatic Sprinkler Co., Inc.
(800) 431-1588 Sales Offices
(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
www.reliablesprinkler.com Internet Address

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Bulletin 014 Rev. I

Reliable®

Model F1FR Series Quick Response Standard Spray

Model F1FR56 Sprinkler Types
Standard Upright
Standard Pendent
Conventional
Vertical Sidewall
Horizontal Sidewall

Model F1FR56 Recessed Sprinkler Types
Standard Pendent/F1/F2/FP
Horizontal Sidewall

Model F1FR56 Concealed Sprinkler Types
Standard Pendent

Model F1FR42, F1FRXLH & F1FR28 Sprinkler Types
Standard Upright
Standard Pendent

Model F1FR42, F1FRXLH & F1FR28 Recessed Sprinkler Types
Standard Pendent

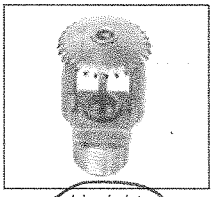
Listing & Approvals
1. Underwriters Laboratories Inc. and Certified for Canada (cULus).
2. Factory Mutual Approvals (FM)
3. Loss Prevention Council (LPCB, UK)
4. VdS Schadenverhütung GmbH

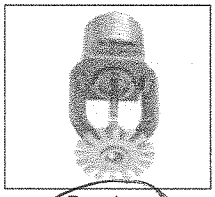
UL Listing Category
Sprinklers, Automatic & Open (VNIV)
Quick Response Sprinkler

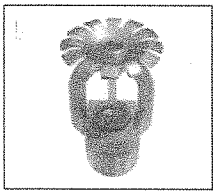
Product Description
Reliable Models F1FR56, F1FR42, F1FRXLH & F1FR28 Series Sprinklers are quick response sprinklers which combine the durability of a standard sprinkler with the attractive low profile of a decorative sprinkler.

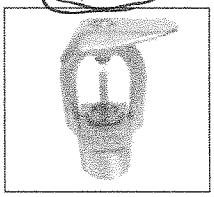
The Models F1FR56, F1FR42, F1FRXLH & F1FR28 Series Recessed automatic sprinklers utilize a 3.0 mm frangible glass bulb. These sprinklers have demonstrated response times in laboratory tests which are five to ten times faster than standard response sprinklers. This quick response enables the Model F1FR56, F1FR42, F1FRXLH & F1FR28 Series sprinklers to apply water to a fire much faster than standard sprinklers of the same temperature rating.

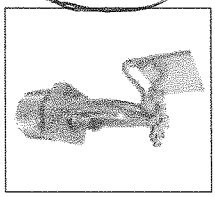
The glass bulb consists of an accurately controlled amount of special fluid hermetically sealed inside a precisely manufactured glass capsule. This glass bulb is specially constructed to provide fast thermal response.

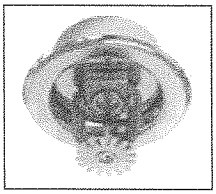

Upright

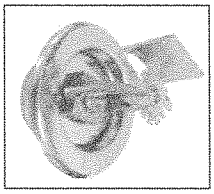

Pendent

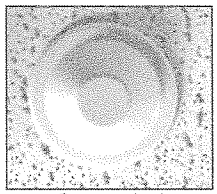

Conventional

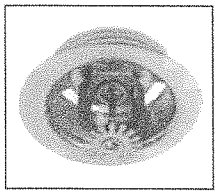

Vertical Sidewall

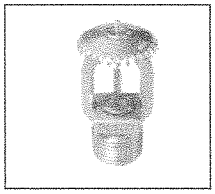

Horizontal Sidewall

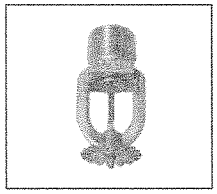

Recessed Pendent/F1/F2

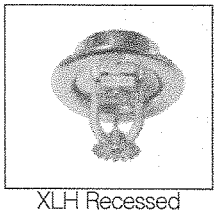

Recessed Horizontal Sidewall

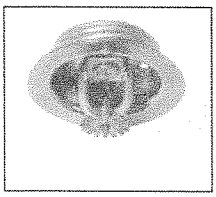

Concealed Pendent


Recessed Pendent/FP


XLH Upright


XLH Pendent

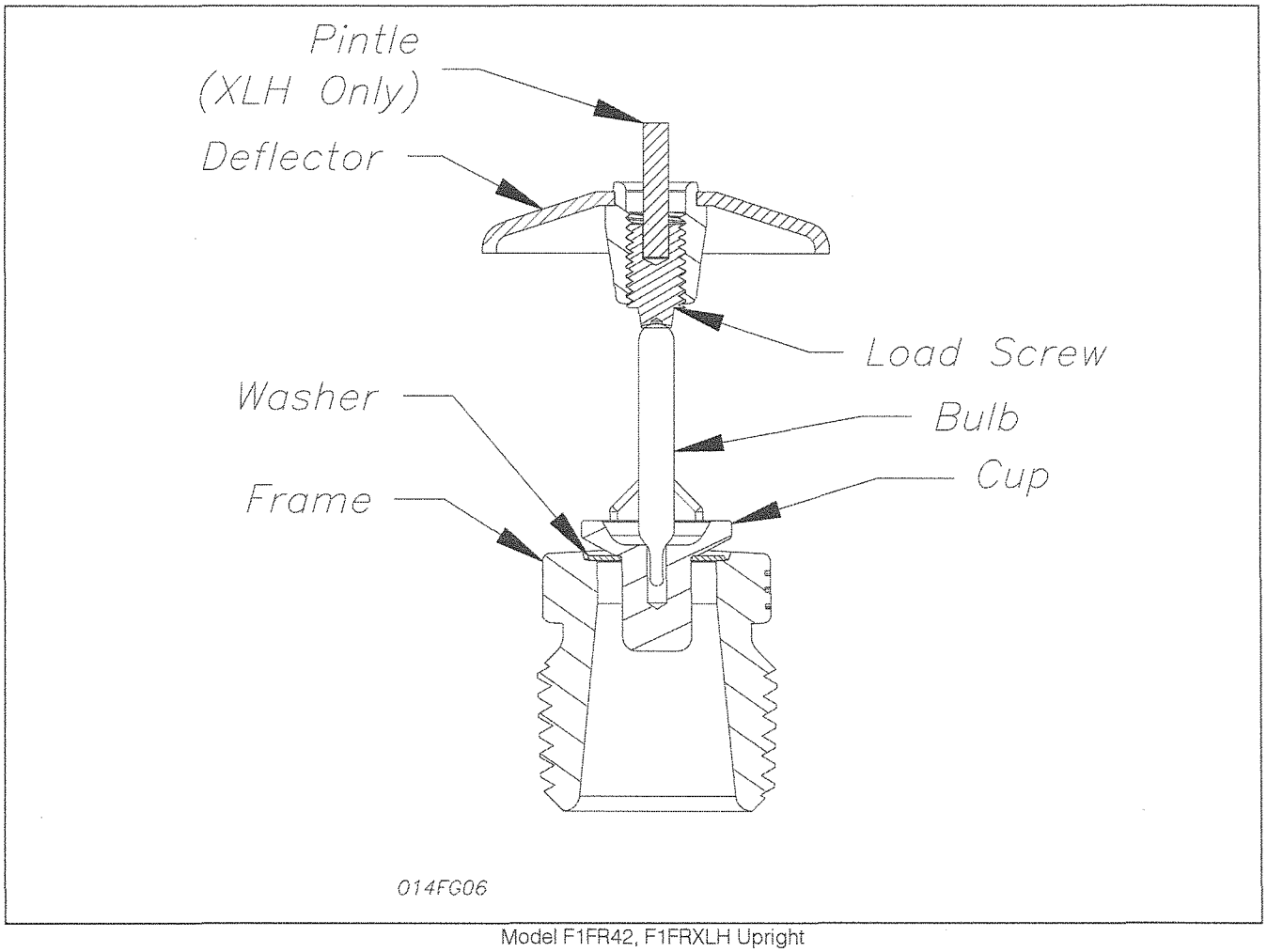

XLH Recessed Pendent F1/F2


XLH Recessed Pendent FP

At normal temperatures, the glass bulb contains the fluid in both the liquid and vapor phases. The vapor phase can be seen as a small bubble. As heat is applied, the liquid expands, forcing the bubble smaller and smaller as the liquid pressure increases. Continued heating forces the liquid to push out against the bulb, causing the glass to shatter, opening the waterway and allowing the deflector to distribute the discharging water.

Application

Quick response sprinklers are used in fixed fire protection systems: Wet, Dry, Deluge or Preaction. Care must be exercised that the orifice size, temperature rating, deflector style and sprinkler type are in accordance with the latest published standards of the National Fire Protection Association or the approving Authority Having Jurisdiction. Quick response sprinklers are intended for installation as specified in NFPA 13. Quick response sprinklers and standard response sprinklers should not be intermixed.



Model F1FR42, F1FRXLH Upright

Technical data:

Models	Discharge Coefficient	Response	Thread Size	Max. Working Pressure	Min. Working Pressure	Temperature Rating	Finish
F1FR56	K 5.6	Quick Response	1/2" NPT (R1/2)	175 PSI	7 PSI	See "Temperature Ratings" Table.	See "Finish Table"
F1FR42 F1FRXLH	K 4.2						
F1FR28	K 2.8						

Material Data:

Frame	Deflector	Load Screw	Pintle	Cup	Washer	Bulb
DZR Brass QM Brass	CDA Alloy 260, CDA Alloy 220 or CDA Alloy510	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 360 or CDA Alloy 544	CDA Alloy 651 or CDA Alloy 693	Nickel Alloy 440 or Alloy 360 coated with PTFE Adhesive Tape	Glass

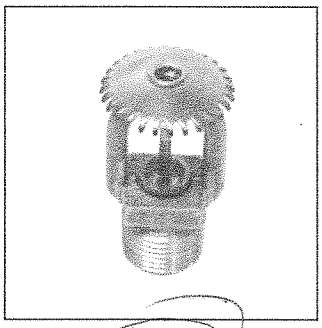
Model F1FR56, Upright, Pendent & Conventional Sprinklers
Model F1FR42, F1FRXLH & F1FR28 Upright & Pendent Sprinklers

Installation Wrench: Model D Sprinkler Wrench

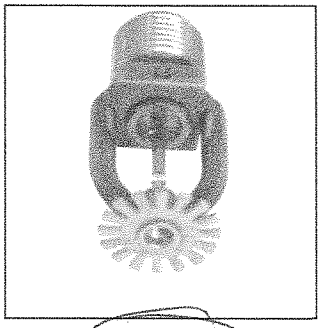
Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organization	Sprinkler Identification Number (SIN)	
		US	Metric			Upright	Pendent
Standard-Upright (SSU) and pendent Deflectors Marked to Indicate Position							
1/2" (15mm) [1]	1/2" NPT (R1/2)	5.6	80	2.25" (57mm)	1,2,3,4	RA1425[1][2][3]	RA1414[1][2][3]
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	1	RA1423[1]	RA1413
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	1	RA1421[1]	RA1411
Conventional-Install in Upright or Pendent Position							
15mm [1]	1/2" NPT (R1/2)	5.6	80	57mm	3, 4	RA1475[3]	

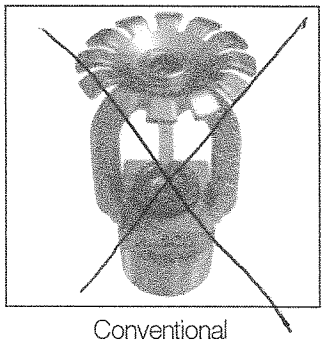
[1] cULus listed corrosion resistant (Polyester coated) sprinkler.
[2] Polyester coated FM approved sprinkler.
[3] Polyester coated LPCB & VdS approved sprinkler RA1425, RA1414 & RA1475.



Upright



Pendent



Conventional

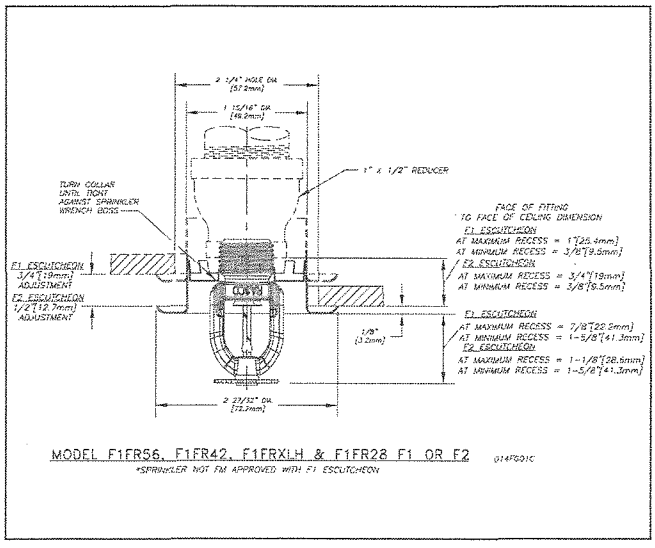
Model F1FR56, F1FR42, F1FRXLH & F1FR28 Quick Response Recessed Pendent Sprinkler[1]

Installation Wrench: Model GFR2 Sprinkler Wrench

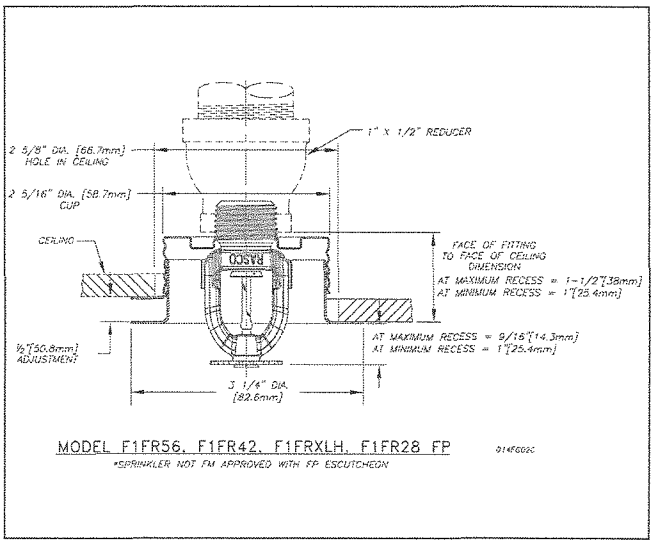
Installation Data:

Nominal Orifice	Thread Size	K Factor		Sprinkler Height	Sprinkler Identification Number (SIN)
		US	Metric		
1/2" (15mm)	1/2" NPT(R½)	5.6	80	2.25" (57mm)	RA1414
7/16" (10mm)	1/2" NPT (R1/2)	4.2	60	2.25" (57mm)	RA1413
3/8" (10mm)	1/2" NPT (R1/2)	2.8	40	2.25" (57mm)	RA1411

[1] Refer to escutcheon data table for approvals & dimensions



Model F1FR56, F1FRXLH & F1FR28 F1 or F2



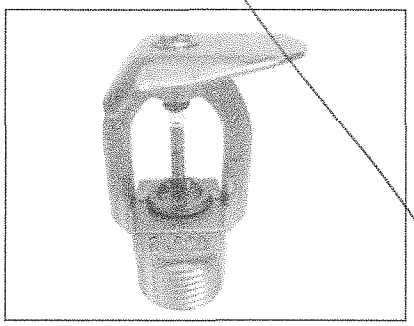
Model F1FR56, F1FRXLH & F1FR28 FP

Model F1FR56 Quick Response Vertical Sidewall Sprinkler

Installation Wrench: Model D Sprinkler Wrench
Installation Position: Upright or Pendent
Approval Type: Light Hazard Occupancy
Installation Data:

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations	Sprinkler Identification Numbers (SIN)
		US	Metric			
½" (15mm)	½" NPT (R1/2)	5.6	8.0	2.25" (57mm)	1,2,3,4	RA1485[2]
15mm	½" NPT (R1/2)	5.6	8.0	2.25" (57mm)	4[1]	

[1] LPC Approval is for pendent position only.
[2] cULus Listed corrosion resistant (Polyester coated) sprinkler.



Vertical Sidewall

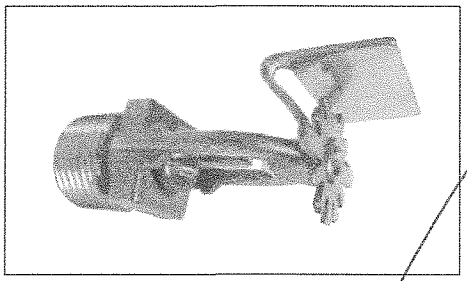
Sprinkler Type	Deflector to Ceiling Distance (Min. - Max.)
Upright	4" (102mm) - 12" (305mm)
Pendent	4" (102mm) - 12" (305mm)

Model F1FR56 Quick Response Horizontal Sidewall Sprinkler

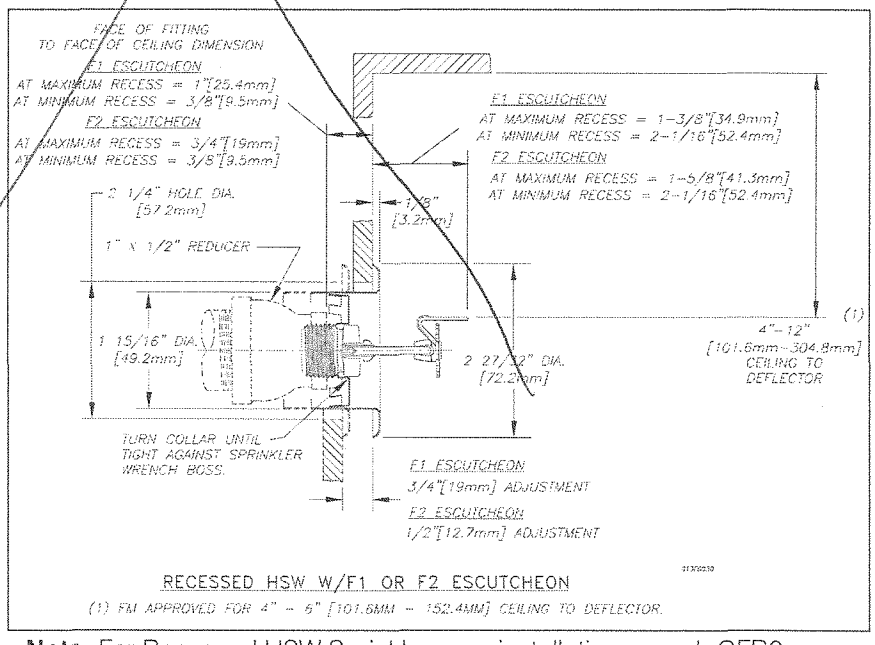
Deflector: HSW
Installation Wrench: Model D Sprinkler Wrench
Installation Data: Horizontal Sidewall

Nominal Orifice	Thread Size	Nominal K Factor		Sprinkler Height	Approval Organizations and Type of Approval		Sprinkler Identification Numbers (SIN)
		US	Metric		Light Hazard	Ordinary Hazard	
½" (15mm)	½" NPT (R1/2)	5.6	80	2.63" (67mm)	1,2	1	RA1435[1][2]

[1] cULus Listed corrosion resistant (Polyester coated) sprinkler.
[2] Polyester coated FM approved sprinkler.



Horizontal Sidewall



Note: For Recessed HSW Sprinklers use installation wrench GFR2.

Model F1FR56 Quick Response Concealed Pendent Sprinklers

Installation Wrench: Model RC1 Sprinkler Wrench

Technical Data:

Nominal Orifice	"K" Factor		Thread Size	Model	Temp. Rating		Max. Ambient Temp	Bulb Color	Approvals	Sprinkler Identification Number(SIN)
	US	Metric			Sprinkler	Cover				
½" (15mm)	5.6	80	½" NPT	F1FR	135°F/57°C	135°F/57°C	100°F/38°C	Orange	1	RA1414
½" (15mm)	5.6	80	½" NPT	F1FR	155°F/68°C	135°F/57°C	100°F/38°C	Red	1, 4[1]	RA1414
½" (15mm)	5.6	80	½" NPT	F1FR	175°F/79°C	165°F/74°C	100°F/38°C	Yellow	1	RA1414
½" (15mm)	5.6	80	½" NPT	F1FR	200°F/93°C	165°F/74°C	150°F/65°C	Green	1	RA1414

[1] For VdS only = 155°F/68°C Norbulb and 1/2" [12,7mm] adjustment.

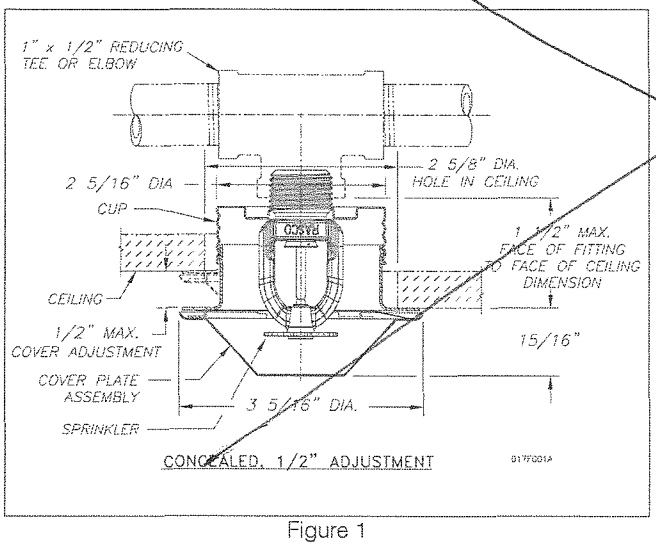


Figure 1

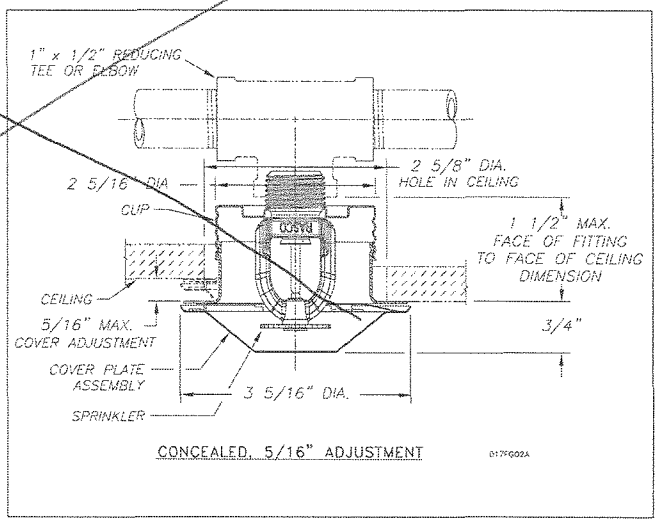


Figure 2

Installation Aid

A protective cap is included for use during installation.

Important: The F1FR56 Sprinkler with Model CCP cover plate is not an FM Approved combination.

Installation

Quick response sprinklers are intended for installation as specified in NFPA 13. Quick response sprinklers and standard response sprinklers should not be intermixed.

The Model F1FR56, F1FR42, F1FRXLH & F1FR28 Recessed Quick Response Sprinklers are to be installed as shown. The Model F1 or F2 Escutcheons illustrated are the only recessed escutcheons to be used with the Model F1FR56, F1FR42, F1FRXLH & F1FR28 Sprinklers. The use of any other recessed escutcheon will void all approvals and negate all warranties.

When installing Model F1FR56, F1FR42, F1FRXLH & F1FR28 Sprinklers, use the Model D Sprinkler Wrench. Use the Model GFR2 Wrench for installing F1FR56, F1FR42, F1FRXLH & F1FR28 Recessed Pendent Sprinklers. Any other type of wrench may damage these sprinklers.

NOTE: A leak tight ½" NPT (R1/2) sprinkler joint can be obtained with a torque of 8-18 ft-lbs (10,8 - 24,4 N-m). Do not tighten sprinklers over maximum recommended torque. It may cause leakage or impairment of the sprinklers.

*DuPont Registered Trade Mark

The Model F1FR56/ CCP Concealed Sprinkler uses the ½" orifice, ½" NPT (R1/2), 135°F (57°C), 155°F (68°C), 175°F (79°C) or 200°F (93°C) Model F1FR56 Pendent Sprinkler with a threaded Model CCP cup which is factory attached to the sprinkler. The assembly is completed by the installation of the attractive, low profile, 135°F (57°C) or 165°F (74°C) rated Model CCP push on cover plate assembly. The cover plate and sprinkler cup assemblies are joined using a cover plate skirt with flexible tabs for threaded engagement. A choice of two cover plate assemblies provide either ½" (13mm) or 5/16" (8mm) of cover adjustment.

Do not install these sprinklers in ceiling which have positive pressure in the space above.

After a 2⅝" (67mm) diameter hole is cut in the ceiling, the sprinkler is easily installed with the Model RC1 Wrench. A Teflon* based thread sealant should be applied to the sprinkler threads only. The Model RC1 Wrench is then used to engage the sprinkler wrenching surfaces and to install the sprinkler in the fitting. When inserting or removing the wrench from the sprinkler/cup assembly, care should be taken to prevent damage to the sprinkler. DO NOT WRENCH ON ANY OTHER PART OF THE SPRINKLER. The cover plate is then pushed onto the cup. Final adjustment is made by hand turning the cover plate until the skirt flange makes full contact with the ceiling. Cover plate removal requires turning in the counter clockwise direction.

After installation, inspect all sprinklers to ensure that there is a gap between the cover plate and ceiling and that the four cup slots are open and free from any air flow impediment to the space above.

Concealed cover plate/cup assemblies are listed only for use with specific sprinklers. The use of any other concealed cover plate/cup assembly with the Model F1FR56 Pendent Sprinkler or the use of the Model CCP Concealed cover plate assembly on any sprinkler with which it is not specifically listed my prevent good fire protection and will void all guarantees, warranties, listings and approvals.

Glass bulb sprinklers have orange bulb protectors to minimize bulb damage during shipping, handling and installation. REMOVE THIS PROTECTION AT THE TIME THE SPRINKLER SYSTEM IS PLACED IN SERVICE FOR FIRE PROTECTION. Removal of the protectors before this time may leave the bulb vulnerable to damage. RASCO wrenches are designed to install sprinklers when covers are in place. REMOVE PROTECTORS BY UNDOING THE CLASP BY HAND. DO NOT USE TOOLS TO REMOVE THE PROTECTORS.

Temperature Ratings

Classification	Sprinkler Temperature		Max. Ambient Temp.	Bulb Color
	°C	°F		
Ordinary	57	135	100°F (38°C)	Orange
Ordinary	68	155	100°F (38°C)	Red
Intermediate	79	175	150°F (66°C)	Yellow
Intermediate	93	200	150°F (66°C)	Green
High [1]	141	286	225°F (107°C)	Blue

[1] Not available for recessed sprinklers.

Escutcheon Data [1]

[1] SIN RA1435 – cULus permits use with F1, F2 or FP escutcheons for "light hazard" only, while FM limits use for same hazard with F2 escutcheon only.

Maintenance

The Model F1FR56, F1FR42, F1FRXLH and Model F1FR56, F1FR42, F1FRXLH & F1FR28 Recessed Sprinklers should be inspected quarterly and the sprinkler system maintained in accordance with NFPA 25. Do not clean sprinklers with soap and water, ammonia or any other cleaning fluids. Remove dust by using a soft brush or gentle vacuuming. Remove any sprinkler which has been painted (other than factory applied) or damaged in any way. A stock of spare sprinklers should be maintained to allow quick replacement of damaged or operated sprinklers. Prior to installation, sprinklers should be maintained in the original cartons and packaging to minimize the potential for damage to sprinklers that would cause improper operation or non-operation.

Sprinkler Types

Standard Upright
Standard Pendent
Conventional
Recessed Pendent
Vertical Sidewall
Horizontal Sidewall
Recessed Horizontal sidewall
Concealed pendent

Maximum Working Pressure

175 psi (12 bar)
100% Factory tested hydrostatically to 500 psi (34.5 bar)

Finishes [1]

Standard Finishes		
Sprinkler	**Escutcheon**	**Cover plate[1]**
Bronze Chrome Plated Polyester Coated [4][5][6]	Brass Chrome Plated White Painted	 Chrome White
Special Application Finishes		
Sprinkler	**Escutcheon**	**Cover plate[1]**
Bright Brass [3]	Bright Brass	Bright Brass
Black Plated	Black Plated	Satin
Black Paint [2][6]	Black Paint	Off White
Off White [2][6]	Off White	Black Paint
Satin Chrome	Satin Chrome	Black Plated

[1] Other finishes and colors are available on special order. Consult the factory for details. Custom color painted sprinklers may not retain their UL Corrosion resistance listing. Coverplate custom paint is semi-gloss, unless specified otherwise.
[2] cULus Listed only.
[3] 200°F (93°C) maximum.
[4] cULus listed "corrosion resistance" applies to SIN Numbers RA1435 (HSW), RA1485(VSW), RA1425 (Upright) and RA1414 (Pendent) in standard black or white. Corrosion resistance in other polyester colors is available upon request.
[5] FM Approvals finish as "Polyester coated" applies to SIN Number RA1414 (Pendent) in standard black or white.
[6] LPCB and VdS Approved finish applies only to RA1425, RA1414 and RA1475.

Ordering Information

Specify:

1. Sprinkler Model
2. Sprinkler Type
3. Orifice Size
4. Deflector Type
5. Temperature Rating
6. Sprinkler Finish
7. Escutcheon Type
8. Escutcheon Finish (where applicable)
9. Cover plate Model
10. Cover plate Thread size
11. Cover plate Temperature
12. Cover plate Adjustment
13. Cover plate Finish

Note: When Model F1FR56 Recessed sprinklers are ordered, the sprinklers and escutcheons are packaged separately.

The equipment presented in this bulletin is to be installed in accordance with the latest published Standards of the National Fire Protection Association, Factory Mutual Research Corporation, or other similar organizations and also with the provisions of governmental codes or ordinances whenever applicable. Products manufactured and distributed by Reliable have been protecting life and property for over 90 years, and are installed and serviced by the most highly qualified and reputable sprinkler contractors located throughout the United States, Canada and foreign countries.

Manufactured by
Reliable®

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(800) 848-6051 Sales Fax
(914) 829-2042 Corporate Offices
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FireLock® Rigid Coupling

SEE VICTAULIC PUBLICATION 10.01 FOR DETAILS

§ LPC and VdS Approved, see notes on page 4

STYLE 005H

WITH VIC-PLUS™ GASKET SYSTEM

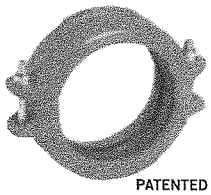
FireLock Style 005H rigid coupling has a unique, patented angle-pad design which allows the housings to offset while clamping the grooves. By permitting the housings to slide on the angled bolt pads, rigidity is obtained.

Support and hanging requirements correspond to NFPA 13 Sprinkler Systems. Angle-pad design permits assembly by removing one nut/bolt and swinging the housing over the gasket. This reduces components to handle during assembly.

Style 005H FireLock coupling are designed and recommended for use ONLY on fire protection systems.

Vic-Plus™ Gasket System:

Victaulic offers a gasket system which requires no field lubrication on wet pipe systems that are hydrostatically tested. The Vic-Plus System (patented) is dry, clean, and non-toxic. It reduces assembly time substantially and eliminates the mess and chance of over-lubrication. Please refer to the latest copy of the Victaulic Field Installation Handbook (I-100) for supplemental lubrication requirements and dry pipe fire protection system notes.



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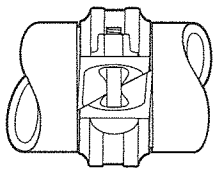


Exaggerated for clarity

LISTING/APPROVALS

The information provided below is based on the latest listing and approval data at the time of publication. Listings/Approvals are subject to change and/or additions by the approvals agencies. Contact Victaulic for performance on other pipe and the latest listings and approvals.

Related Working Pressure – psi					Related Working Pressure – psi					Related Working Pressure – psi				
Pipe Sch.	Size Inches	UL	ULC	FM	Pipe Sch.	Size Inches	UL	ULC	FM	Pipe Sch.	Size Inches	UL	ULC	FM
5	1¼ – 3	175	175	175	EL	1¼ – 2	300	N/A	N/A	MT	1¼ – 2	300	N/A	N/A
	1¼ – 4	350	350	350	ET	1¼ – 2	300	N/A	N/A	STF	1¼ – 4	N/A	N/A	300
10, 40	5 – 8	300	300	300	EZ	4 – 6	300#	N/A	300	Steady Thd.	1¼ – 2	N/A	N/A	300
BLT	1¼ – 2	300	300	N/A	FF	1¼ – 4	N/A	N/A	300	TF	3 – 8	N/A	N/A	300
DF	1¼ – 4	300	300	300	GAL - 7	1¼ – 2	300	N/A	N/A	WLS	1¼ – 2	300	300	N/A
DT	1¼ – 2	300	300	N/A	MLT	1¼ – 2	300	N/A	N/A	XL	1¼ – 3	300	300	300
EF	1¼ – 4	175@	N/A	175	MF	1¼ – 4	300	N/A	300*					

* FM approved for service in 1 ½ – 4" pipe.

UL Listed for service up to 4" pipe only.

@ UL Listed for service up to 3" only.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

Spec Sect _____ Para _____

Approved _____

Date _____

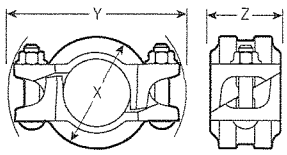
www.victaulic.com

FireLock® Rigid Coupling

STYLE 005H

WITH VIC-PLUS™ GASKET SYSTEM

DIMENSIONS



Rated for wet and dry sprinkler systems at 350 psi/2413 kPa for 1 ¼ – 4"/32 – 100 mm sizes and 300 psi /2068 kPa for 4 ¼ – 8"/108 – 200 mm sizes; Schedule 10 roll grooved or Schedule 40 cut or roll grooved steel pipe. Style 005H is rigid and does not accommodate expansion, contraction or angular deflection.

Size		Max. Work Pressure § *	Max. End Load *	Allow. Pipe End Sep. †	Bolt/Nut@ No – Size	Dimensions – Inches/mm			Approx. Wgt. Each
Nominal Size Inches/mm	Actual Outside Diameter Inches/mm	PSI kPa	Lbs. N	Inches mm	Inches mm	X	Y	Z	Lbs. Kg
1 ¼ 32	1.660 42.4	350 2413	755 3370	0.05 1.2	2 – ⅜ x 2 ¼	2.75 70	4.50 114	1.88 48	1.2 0.5
1 ½ 40	1.900 48.3	350 2413	990 4415	0.05 1.2	2 – ⅜ x 2 ¼	3.00 76	4.75 121	1.88 48	1.2 0.5
2 50	2.375 60.3	350 2413	1550 6900	0.07 1.7	2 – ⅜ x 2 ½	3.50 89	5.25 133	1.88 48	1.6 0.7
2 ½ 65	2.875 73.0	350 2413	2270 10110	0.07 1.7	2 – ⅜ x 2 ½	4.00 102	5.75 146	1.88 48	1.9 .09
76.1 mm	3.000 76.1	350 2413	2475 11010	0.07 1.7	2 – ⅜ x 2 ½	4.13 105	5.75 146	1.88 48	1.9 0.9
3 80	3.500 88.9	350 2413	3365 14985	0.07 1.7	2 – ⅜ x 2 ½	4.63 118	6.13 156	1.88 48	2.1 1.0
4 100	4.500 114.3	350 2413	5565 24770	0.16 4.1	2 – ⅜ x 2 ½	5.75 146	7.25 184	2.13 54	3.1 1.4
108.0 mm	4.250 108.0	300 2068	4255 18940	0.16 4.1	2 – ⅜ x 2 ½	5.63 143	7.25 184	2.13 54	3.1 1.4
5 125	5.563 141.3	300 2068	7290 32445	0.16 4.1	2 – ½ x 3	6.88 175	9.00 229	2.13 54	4.5 2.0
133.0 mm	5.250 133.0	300 2068	6495 28900	0.16 4.1	2 – ½ x 2 ¾	6.63 168	9.00 229	2.13 54	4.5 2.0
139.7 mm	5.500 139.7	300 2068	7125 31715	0.16 4.1	2 – ½ x 2 ¾	6.88 175	9.00 229	2.13 54	4.8 2.2
6 150	6.625 168.3	300 2068	10340 46020	0.16 4.1	2 – ½ x 3	8.00 203	10.00 254	2.13 53	5.0 2.3
159.0 mm	6.250 159.0	300 2068	9200 40955	0.16 4.1	2 – ½ x 2 ¾	7.63 194	10.00 254	2.13 54	5.5 2.5
165.1 mm	6.500 165.1	300 2068	9955 44295	0.16 4.1	2 – ½ x 3	8.15 207	10.00 254	2.13 54	5.5 2.5
8 200	8.625 219.1	300 2068	17525 78000	0.19 4.8	2 – ⅝ x 4 ¼	10.50 267	13.14 334	2.63 67	11.3 5.1

* Working Pressure and End Load are total, from all internal and external loads, based on standard weight (ANSI) steel pipe, standard roll or cut grooved in accordance with Victaulic specifications. Contact Victaulic for performance on other pipe.

WARNING: FOR ONE TIME FIELD TEST ONLY, the Maximum Joint Working Pressure may be increased to 1 ½ times the figures shown.

† The allowable pipe separation dimension shown is for system layout purposes only. Style 005H couplings are considered rigid connections and will not accommodate expansion or contraction of the piping system.

@ Number of bolts required equals number of housing segments. Metric thread size bolts are available (color coded gold) for all coupling sizes upon request. Contact Victaulic for details.

§ Style 005H couplings are VdS and LPC Approved to 16 Bar/235 psi.

FireLock® Rigid Coupling

STYLE 005H

WITH VIC-PLUS™ GASKET SYSTEM

MATERIAL SPECIFICATIONS

Housing: Ductile iron conforming to ASTM A-536, grade 65-45-12. Ductile iron conforming to ASTM A-395, grade 65-45-15, is available upon special request.

Housing Coating: Orange enamel (North America); red enamel (Europe)
- **Optional:** Hot dipped galvanized

Gasket:

- **Grade "E" EPDM – Type A Vic-Plus™ Gasket System Δ**
  (Violet color code). FireLock products have been Listed by Underwriters Laboratories Inc. and Approved by Factory Mutual Research for wet and dry (oil free air) sprinkler services up to the rated working pressure using the Grade "E" Type A Vic-Plus™ Gasket System, requiring no field lubrication for most installation conditions.

- **Grade "L" Silicone**
  Recommended for dry heat, air without hydrocarbons to +350°F and certain chemical services.

For dry services, Victaulic continues to recommend the use of Grade "E" Type A FlushSeal® Gasket. Contact Victaulic for details.

Bolts/Nuts: Heat-treated plated carbon steel, trackhead meeting the physical and chemical requirements of ASTM A-449 and physical requirements of ASTM A-183.

Δ Standard gasket and FlushSeal gasket approved for dry pipe systems to –40°F/–40°C. Based on "typical" pipe surface conditions, supplemental lubricant is recommended for services installed below 0°F/–18°C and for all dry pipe systems or systems to be subjected to air tests prior to being filled with water. Supplemental lubrication may also be required on pipe with raised or undercut weld seams or pipe that has voids and/or cracks at the weld seams. Victaulic continues to recommend the use of FlushSeal gaskets for dry services.

FireLock® Rigid Coupling

STYLE 005H

WITH VIC-PLUS™ GASKET SYSTEM

GENERAL NOTES

WARNING: Depressurize and drain the piping system before attempting to install, remove, or adjust any Victaulic piping products.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

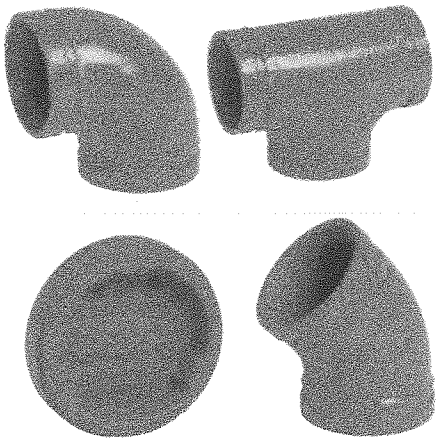
This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.

INSTALLATION

Reference should always be made to the I-100 Victaulic Field Installation Handbook for the product you are installing. Handbooks are included with each shipment of Victaulic products for complete installation and assembly data, and are available in PDF format on our website at www.victaulic.com.

FireLock® Fittings

See Victaulic publication 10.01 for details



FireLock® products comprise a unique system specifically designed for fire protection services. FireLock full-flow elbows and tees feature CAD-developed, hydrodynamic design, affording a shorter center-to-end dimension than standard fittings. A noticeable bulge allows the water to make a smoother turn to maintain similar flow characteristics as standard full flow fittings.

FireLock fittings are designed for use exclusively with Victaulic IPS-sized couplings that have been Listed or Approved for Fire Protection Services. Use of other couplings or flange adapters may result in bolt pad interference.

Victaulic FireLock fittings pressure ratings conform to the ratings of Victaulic FireLock EZ® Style 009N/Style 009H couplings.

MATERIAL SPECIFICATIONS

Fitting: Ductile iron conforming to ASTM A-536, grade 65-45-12.

Fitting Coating:

- Orange enamel.
- Red Enamel in EMEA-I.
- **Optional:** Hot dipped galvanized.

JOB/OWNER

System No. _____

Location _____

CONTRACTOR

Submitted By _____

Date _____

ENGINEER

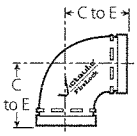
Spec Sect _____ Para _____

Approved _____

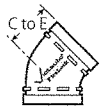
Date _____

FireLock® Fittings

DIMENSIONS



NO. 001



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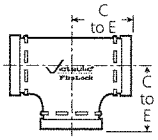

NO. 002

NO. 006

Size		No. 001 90° Elbow		No. 003 45° Elbow		No. 002 Straight Tee		No. 006 Cap	
Nominal Size Inches mm	Actual Outside Diameter Inches mm	C to E Inches mm	Approx. Weight Each Lbs kg	C to E Inches mm	Approx. Weight Each Lbs kg	C to E Inches mm	Approx. Weight Each Lbs kg	Thickness "T" Inches mm	Approx. Weight Each Lbs kg
1¼ 32	1.660 42.4	—	—	—	—	—	—	0.8 21	0.3 0.1
1½ 40	1.900 48.3	—	—	—	—	—	—	0.82 21	0.4 0.2
2 50	2.375 60.3	2.75 70	1.7 0.8	2.00 51	1.8 0.8	2.75 70	2.4 1.1	0.88 22	0.6 0.3
2½ 65	2.875 73.0	3.00 76	3.1 1.4	2.25 57	2.2 1.0	3.00 76	3.6 1.6	0.88 22	1.0 0.5
76.1 mm	3.000 76.1	3.00 76	3.30 1.5	2.25 57	2.4 1.1	—	—	—	—
3 80	3.500 88.9	3.38 86	4.0 1.8	2.50 64	3.1 1.4	3.38 86	5.3 2.4	0.88 22	1.2 0.5
108 mm	4.250 108.0	4.00 102	5.7 2.6	3.00 76	5.1 2.3	4.00 102	7.5 3.4	—	—
4 100	4.500 114.3	4.00 102	6.7 3.0	3.00 76	5.6 2.5	4.00 102	8.7 3.9	1.00 25	2.4 1.1
5 125	5.563 141.3	4.88 124	12.6 5.7	3.25 83	8.3 3.8	4.88 124	15.7 7.1	1.00 25	4.1 1.9
159 mm	6.250 158.8	5.50 140	12.6 5.7	3.50 89	9.2 4.2	5.50 140	17.9 8.0	—	—
6 150	6.625 168.3	5.50 140	18.3 8.3	3.50 89	11.7 5.3	5.50 140	22.7 10.3	1.00 25	5.9 2.7
8 200	8.625 219.1	6.81 173	25.5 11.6	4.25 108	20.4 9.3	6.94 176	38.7 17.6	1.13 29	12.7 5.8

FireLock® Fittings

FLOW DATA

Size		Frictional Resistance Equivalent Feet/meters of Straight Pipe †			
		Elbows		No. 392 Straight Tee	
Nominal Size Inches mm	Actual Outside Diameter Inches mm	No. 90° 90° Elbow	No. 909 45° Elbow	Branch	Run
1 ¼ 32	1.660 42.4	— —	— —	— —	— —
1 ½ 40	1.900 48.3	— —	— —	— —	— —
2 50	2.375 60.3	3.5 1.1	1.8 0.5	8.5 2.6	3.5 1.1
2 ½ 65	2.875 73.0	4.3 1.3	2.2 0.7	10.8 3.3	4.3 1.3
76.1 mm	3.000 76.1	4.5 1.4	2.3 0.7	11.0 3.4	4.5 1.4
3 80	3.500 88.9	5.0 1.5	2.6 0.8	13.0 4.0	5.0 1.5
108 mm	4.250 108.0	6.4 2.0	3.2 0.9	15.3 4.7	6.4 2.0
4 100	4.500 114.3	6.8 2.1	3.4 1.0	16.0 4.9	6.8 2.1
5 125	5.563 141.3	8.5 2.6	4.2 1.3	21.0 6.4	8.5 2.6
159 mm	6.250 158.8	9.4 2.9	4.9 1.5	25.0 7.6	9.6 2.9
6 150	6.625 168.3	10.0 3.0	5.0 1.5	25.0 7.6	10.0 3.0
8 200	8.625 219.1	13.0 4.0	5.0 1.5	33.0 10.1	13.0 4.0

† The flow data listed is based upon the pressure drop of Schedule 40 pipe.

FireLock® Fittings

GENERAL NOTES

NOTE: When assembling FireLock EZ couplings onto end caps, take additional care to make certain the end cap is fully seated against the gasket end stop. For FireLock EZ Style 009N/009H couplings, use FireLock No. 006 end caps containing the "EZ" marking on the inside face or No. 60 end caps containing the "QV EZ" marking on the inside face. Non-Victaulic end cap products shall not be used with Style 009/009V/009H couplings.

WARRANTY

Refer to the Warranty section of the current Price List or contact Victaulic for details.

NOTE

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.